

| | |
|---|------|
| cat cag tgg gaa aat aca cct tta aaa gca gaa aga cat aga act gaa His Gln Trp Glu Asn Thr Pro Leu Lys Ala Glu Arg His Arg Thr Glu 455 460 465 470 | 1624 |
| gat aag aga aaa aga gaa caa gaa agc aaa gaa gaa aat agg cat att Asp Lys Arg Lys Arg Glu Gln Glu Ser Lys Glu Glu Asn Arg His Ile 471 476 481 486 | 1672 |
| aga aat gaa aaa aga gta cct aca gaa cat ttg cag aag act aat aag Arg Asn Glu Lys Arg Val Pro Thr Glu His Leu Gln Lys Thr Asn Lys 487 492 497 502 | 1720 |
| gaa act aag aaa acc act act gat tta aag aaa cag aat gaa cca aag Glu Thr Lys Lys Thr Thr Thr Asp Leu Lys Lys Gln Asn Glu Pro Lys 503 508 513 518 | 1768 |
| act gat aag gga gaa gtc ctt gat aat ggt gtt tct gaa gga gca gat Thr Asp Lys Gly Glu Val Leu Asp Asn Gly Val Ser Glu Gly Ala Asp 519 524 529 534 | 1816 |
| aat aaa gag ctt gca atg aaa gct gag agt ggt cca aat gaa aca aaa Asn Lys Glu Leu Ala Met Lys Ala Glu Ser Gly Pro Asn Glu Thr Lys 535 540 545 550 | 1864 |
| aac aag gac cta aaa ttg agt ttt atg aaa aaa ttg aac tta act ctt Asn Lys Asp Leu Lys Leu Ser Phe Met Lys Lys Leu Asn Leu Thr Leu 551 556 561 566 | 1912 |
| tct cct gct aaa aag caa cct gtt tcc cag gat aat cag cat aaa ata Ser Pro Ala Lys Lys Gln Pro Val Ser Gln Asp Asn Gln His Lys Ile 567 572 577 582 | 1960 |
| act gat att ccc aag tcc agt ggt gta tgt gat tca gag tct tca atg Thr Asp Ile Pro Lys Ser Ser Gly Val Cys Asp Ser Glu Ser Ser Met 583 588 593 598 | 2008 |
| caa gtt aaa aca gtg gca tat gtt ccc tcc ata agt gaa cat atc ttg Gln Val Lys Thr Val Ala Tyr Val Pro Ser Ile Ser Glu His Ile Leu 599 604 609 614 | 2056 |
| ggg gaa gca gct gtc agt gaa cat acc atg ggg gaa acc aag tca acg Gly Glu Ala Ala Val Ser Glu His Thr Met Gly Glu Thr Lys Ser Thr 615 620 625 630 | 2104 |
| tta ttg gaa cca aag gtt gct ctt cta gca gtg act gaa ccc agg atc Leu Leu Glu Pro Lys Val Ala Leu Leu Ala Val Thr Glu Pro Arg Ile 631 636 641 646 | 2152 |
| ggt atc tca gaa acc aac aag gaa gac gaa aat agt ttg tta gtt agg Gly Ile Ser Glu Thr Asn Lys Glu Asp Glu Asn Ser Leu Leu Val Arg 647 652 657 662 | 2200 |
| tct gtt gac aat act atg cat tgt gaa gag ccc att tgt ggt aca gag Ser Val Asp Asn Thr Met His Cys Glu Glu Pro Ile Cys Gly Thr Glu 663 668 673 678 | 2248 |
| act tcc ttc cca tct cct atg gaa ata caa cag aca gaa tcc ttg ttt | 2296 |

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|---------------------|-------------------------|-------------------------|------|------|
| 903 | 908 | 913 | 918 | |
| tgt aca gaa gca gac | aca tgt aag aat tca | cca tta gat gaa tta gaa | | 3016 |
| Cys Thr Glu Ala Asp | Thr Cys Lys Asn Ser | Pro Leu Asp Glu Leu Glu | | |
| 919 | 924 | 929 | 934 | |
| gaa gga gaa att aga | agt gat agt gaa aca tct | aaa cca caa gaa agt | | 3064 |
| Glu Gly Glu Ile Arg | Ser Asp Ser Glu Thr Ser | Lys Pro Gln Glu Ser | | |
| 935 | 940 | 945 | 950 | |
| ttt gaa aaa aat tcc | aaa cgt aga gtg tca gct | gat gtg cgg aag tca | | 3112 |
| Phe Glu Lys Asn Ser | Lys Arg Arg Val Ser | Ala Asp Val Arg Lys Ser | | |
| 951 | 956 | 961 | 966 | |
| aag act atc cca cga | cgt ggg aaa agt act | gtg tgt tta gat aaa gac | | 3160 |
| Lys Thr Ile Pro Arg | Arg Gly Lys Ser Thr | Val Cys Leu Asp Lys Asp | | |
| 967 | 972 | 977 | 982 | |
| agt agg aaa aca cat | gta aga atc cat cag | acc aat aac aaa tgg aat | | 3208 |
| Ser Arg Lys Thr His | Val Arg Ile His Gln | Thr Asn Asn Lys Trp Asn | | |
| 983 | 988 | 993 | 998 | |
| aaa aga cct gat aaa | tct agt aga tct tca | aaa aca gag aag aaa gat | | 3256 |
| Lys Arg Pro Asp Lys | Ser Ser Arg Ser Ser | Lys Thr Glu Lys Lys Asp | | |
| 999 | 1004 | 1009 | 1014 | |
| aaa gtg atg agc act | tcc agc ttg gaa aaa | ata gtt cca att att gct | | 3304 |
| Lys Val Met Ser Thr | Ser Ser Leu Glu Lys | Ile Val Pro Ile Ile Ala | | |
| 1015 | 1020 | 1025 | 1030 | |
| gta ccc tct tct gaa | caa gag atc atg cac | atg tta cga atg ata aga | | 3352 |
| Val Pro Ser Ser Glu | Gln Glu Ile Met His | Met Leu Arg Met Ile Arg | | |
| 1031 | 1036 | 1041 | 1046 | |
| aaa cat gta aga aaa | aat tat atg aaa ttc | aag gca aaa ttt tca tta | | 3400 |
| Lys His Val Arg Lys | Asn Tyr Met Lys Phe | Lys Ala Lys Phe Ser Leu | | |
| 1047 | 1052 | 1057 | 1062 | |
| ata caa ttt cac aga | att att gag tca gca | att ttg agt ttt aca tct | | 3448 |
| Ile Gln Phe His Arg | Ile Ile Glu Ser Ala | Ile Leu Ser Phe Thr Ser | | |
| 1063 | 1068 | 1073 | 1078 | |
| tta att aaa cat ctc | aac tta cac aaa atc | tct aag tca gtg act acc | | 3496 |
| Leu Ile Lys His Leu | Asn Leu His Lys Ile | Ser Lys Ser Val Thr Thr | | |
| 1079 | 1084 | 1089 | 1094 | |
| tta cag aag aat ctc | tgt gat att ata gag | tct aaa ctt aag caa gtt | | 3544 |
| Leu Gln Lys Asn Leu | Cys Asp Ile Ile Glu | Ser Lys Leu Lys Gln Val | | |
| 1095 | 1100 | 1105 | 1110 | |
| aaa aag aat ggc ata | ggt gat cgt tta ttt | gaa cag caa cta cca gat | | 3592 |
| Lys Lys Asn Gly Ile | Val Asp Arg Leu Phe | Glu Gln Gln Leu Pro Asp | | |
| 1111 | 1116 | 1121 | 1126 | |
| atg aaa aaa aaa ttg | tgg aag ttt gta gat | gac caa ctt gat tat ttg | | 3640 |
| Met Lys Lys Lys Leu | Trp Lys Phe Val Asp | Asp Gln Leu Asp Tyr Leu | | |
| 1127 | 1132 | 1137 | 1142 | |

| | |
|---|------|
| ttt gca aag ctt aag aaa atc tta gta tgt gat tcc aaa agc ttt gga | 3688 |
| Phe Ala Lys Leu Lys Lys Ile Leu Val Cys Asp Ser Lys Ser Phe Gly | |
| 1143 1148 1153 1158 | |
| aga gat agt gat gaa ggc aaa ctt gaa aaa aca agt aaa cag aat gca | 3736 |
| Arg Asp Ser Asp Glu Gly Lys Leu Glu Lys Thr Ser Lys Gln Asn Ala | |
| 1159 1164 1169 1174 | |
| cag tat tca aat agt cag aaa agg agt gtg gac aac tcc aac aga gaa | 3784 |
| Gln Tyr Ser Asn Ser Gln Lys Arg Ser Val Asp Asn Ser Asn Arg Glu | |
| 1175 1180 1185 1190 | |
| ttg ctg aaa gaa aaa tta tca aaa tca gaa gac cct gtt cat tat aag | 3832 |
| Leu Leu Lys Glu Lys Leu Ser Lys Ser Glu Asp Pro Val His Tyr Lys | |
| 1191 1196 1201 1206 | |
| tct tta gtg gga tgt aaa aaa tct gag gaa aat tat caa gac caa aat | 3880 |
| Ser Leu Val Gly Cys Lys Lys Ser Glu Glu Asn Tyr Gln Asp Gln Asn | |
| 1207 1212 1217 1222 | |
| aac tcc agt att aac act gta aag cat gac att aaa aaa aat ttt aac | 3928 |
| Asn Ser Ser Ile Asn Thr Val Lys His Asp Ile Lys Lys Asn Phe Asn | |
| 1223 1228 1233 1238 | |
| atc tgc ttt gat aat ata aag aac tct caa tcc gaa gag cgc tcc ttg | 3976 |
| Ile Cys Phe Asp Asn Ile Lys Asn Ser Gln Ser Glu Glu Arg Ser Leu | |
| 1239 1244 1249 1254 | |
| gaa gta cac tgt cca agc acc cca aag tca gaa aaa aac gaa gga agc | 4024 |
| Glu Val His Cys Pro Ser Thr Pro Lys Ser Glu Lys Asn Glu Gly Ser | |
| 1255 1260 1265 1270 | |
| agc ata gag gat gca cag aca tcc cag cat gca act ttg aag cca gaa | 4072 |
| Ser Ile Glu Asp Ala Gln Thr Ser Gln His Ala Thr Leu Lys Pro Glu | |
| 1271 1276 1281 1286 | |
| cga agt ttc gag att ctt acc gaa cag caa gca tcg agc ctt act ttt | 4120 |
| Arg Ser Phe Glu Ile Leu Thr Glu Gln Gln Ala Ser Ser Leu Thr Phe | |
| 1287 1292 1297 1302 | |
| aat tta gtg agt gat gca caa atg ggt gaa ata ttt aaa agt ttg ttg | 4168 |
| Asn Leu Val Ser Asp Ala Gln Met Gly Glu Ile Phe Lys Ser Leu Leu | |
| 1303 1308 1313 1318 | |
| caa ggt tct gat ctt tta gac agc agt gtt aac tgt act gaa aaa agt | 4216 |
| Gln Gly Ser Asp Leu Leu Asp Ser Ser Val Asn Cys Thr Glu Lys Ser | |
| 1319 1324 1329 1334 | |
| gag tgg gag tta aag act cca gag aag cag ctg cta gag act ctt aag | 4264 |
| Glu Trp Glu Leu Lys Thr Pro Glu Lys Gln Leu Leu Glu Thr Leu Lys | |
| 1335 1340 1345 1350 | |
| tgc gag tct ata cca gct tgt aca aca gaa gag cta gtt tca ggg gtg | 4312 |
| Cys Glu Ser Ile Pro Ala Cys Thr Thr Glu Glu Leu Val Ser Gly Val | |
| 1351 1356 1361 1366 | |

| 1815 | 1820 | 1825 | 1830 | |
|--|------|------|------|------|
| aat tct cac aaa aag aga aga aac att tct gat cta aat cat cct cat | | | | 5752 |
| Asn Ser His Lys Lys Arg Arg Asn Ile Ser Asp Leu Asn His Pro His | | | | |
| 1831 | 1836 | 1841 | 1846 | |
| aaa aaa caa aga aag gaa aca gac tta act aat aag gaa aag acc aag | | | | 5800 |
| Lys Lys Gln Arg Lys Glu Thr Asp Leu Thr Asn Lys Glu Lys Thr Lys | | | | |
| 1847 | 1852 | 1857 | 1862 | |
| aaa cct acc caa gat tct tgt gag aat act gaa gct cac caa aag aaa | | | | 5848 |
| Lys Pro Thr Gln Asp Ser Cys Glu Asn Thr Glu Ala His Gln Lys Lys | | | | |
| 1863 | 1868 | 1873 | 1878 | |
| gcc agt aag aag aag gcc cct cct gtg act aaa gat ccc tca tca tta | | | | 5896 |
| Ala Ser Lys Lys Lys Ala Pro Pro Val Thr Lys Asp Pro Ser Ser Leu | | | | |
| 1879 | 1884 | 1889 | 1894 | |
| aag gca acc cca ggg att aag gat tca tca gca gca ctt gcc act tct | | | | 5944 |
| Lys Ala Thr Pro Gly Ile Lys Asp Ser Ser Ala Ala Leu Ala Thr Ser | | | | |
| 1895 | 1900 | 1905 | 1910 | |
| aca agt ctt tct gca aaa aat gtt att aaa aag aag gga gaa att atc | | | | 5992 |
| Thr Ser Leu Ser Ala Lys Asn Val Ile Lys Lys Lys Gly Glu Ile Ile | | | | |
| 1911 | 1916 | 1921 | 1926 | |
| att tta tgg aca aga aat gat gac cgg gaa att tta ttg gag tgt cag | | | | 6040 |
| Ile Leu Trp Thr Arg Asn Asp Asp Arg Glu Ile Leu Leu Glu Cys Gln | | | | |
| 1927 | 1932 | 1937 | 1942 | |
| aaa aga ggg cca tca ttt aaa aca ttt gca tat tta gcc gcc aag ttg | | | | 6088 |
| Lys Arg Gly Pro Ser Phe Lys Thr Phe Ala Tyr Leu Ala Ala Lys Leu | | | | |
| 1943 | 1948 | 1953 | 1958 | |
| gat aaa aat cca aat cag gtc tca gaa aga ttc cag cag cta atg aag | | | | 6136 |
| Asp Lys Asn Pro Asn Gln Val Ser Glu Arg Phe Gln Gln Leu Met Lys | | | | |
| 1959 | 1964 | 1969 | 1974 | |
| ctc ttt gaa aag tca aaa tgc agg tag ttaat ggttacacta caggagacta | | | | 6188 |
| Leu Phe Glu Lys Ser Lys Cys Arg * | | | | |
| 1975 | 1980 | | | |
| gtaaaataaaa tgtttgacac tgtagttgtg cagttaatgg cctgttagtc attgaagatg | | | | 6248 |
| tgaatagtgg gtgagagaca tccagttgag ttctgtcttc agtcacaggt tggaggatga | | | | 6308 |
| ttgctcgagc aggcattctaa ggtgacctc | | | | 6337 |

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tttacttaag ggcgatggca gagacgtcct cctccccctt ctctctctct ttggtgcctc 180

cagccaggag gcgggagcga tccacagcag ctgaccaccgc tcaggcactg cctctctcac 240

agccctcaag acacaccatg ggcccagagg caggtttgct acacagcagc gacgacgcag 300

gcggcgcccc cagcgactcg caactgcctc cctgaccaca gcggccaccg cccaacaccc 360

ccgagaagcc atcgccacca ccggcaggag aacctagggt ccataaagcc atcttcgcga 420

tcgactaaag ctacgtcaac aact atg gcg ggc gac ggg cgg cgg gca gag 471
Met Ala Gly Asp Gly Arg Arg Ala Glu
1 5

gcg gtg cgg gaa gga tgg ggt gtg tac gtc acc ccc agg gcc ccc atc 519
Ala Val Arg Glu Gly Trp Gly Val Tyr Val Thr Pro Arg Ala Pro Ile
10 15 20 25

cga gag gga agg ggc cgg ctc gcc cct caa aat ggc ggc agc agc gat 567
Arg Glu Gly Arg Gly Arg Leu Ala Pro Gln Asn Gly Gly Ser Ser Asp
26 31 36 41

gcg cct gcg tac aga act cct ccg tcg cgc cag ggc cgg cgg gaa gtg 615
Ala Pro Ala Tyr Arg Thr Pro Pro Ser Arg Gln Gly Arg Arg Glu Val
42 47 52 57

agg ttc tcg gac gag ccg cca gaa gtg tac ggc gac ttc gag ccc ctg 663
Arg Phe Ser Asp Glu Pro Pro Glu Val Tyr Gly Asp Phe Glu Pro Leu
58 63 68 73

gtg gcc aaa gaa agg tcc ccg gtg gga aaa cga acc cgg cta gaa gag 711
Val Ala Lys Glu Arg Ser Pro Val Gly Lys Arg Thr Arg Leu Glu Glu
74 79 84 89

ttc cgg tcc gat tct gcg aaa gag gaa gtg aga gaa agc gcg tac tac 759
Phe Arg Ser Asp Ser Ala Lys Glu Glu Val Arg Glu Ser Ala Tyr Tyr
90 95 100 105

ctt cgg tct agg cag cgg agg cag ccg cga ccc cag gaa acc gag gaa 807
Leu Arg Ser Arg Gln Arg Arg Gln Pro Arg Pro Gln Glu Thr Glu Glu
106 111 116 121

atg aag acg cga agg act acc cgc ctt cag cag cag cac tca gag cag 855
Met Lys Thr Arg Arg Thr Thr Arg Leu Gln Gln Gln His Ser Glu Gln
122 127 132 137

cct ccg cta cag ccg tct cct gtt acg acc agg aga ggg ctg cgg gac 903
Pro Pro Leu Gln Pro Ser Pro Val Thr Thr Arg Arg Gly Leu Arg Asp
138 143 148 153

| | |
|--|------|
| tct cat tcc tct gaa gag gat gaa gca tct tcc caa act gat tta agc Ser His Ser Ser Glu Glu Asp Glu Ala Ser Ser Gln Thr Asp Leu Ser 154 159 164 169 | 951 |
| caa acg atc tca aag aaa act gtc agg agc ata caa gag gct cca gtg Gln Thr Ile Ser Lys Lys Thr Val Arg Ser Ile Gln Glu Ala Pro Val 170 175 180 185 | 999 |
| agt gaa gat ctt gta atc agg tta cgt cga ccc cct cta aga tac cca Ser Glu Asp Leu Val Ile Arg Leu Arg Arg Pro Pro Leu Arg Tyr Pro 186 191 196 201 | 1047 |
| aga tat gaa gcc acc agt gtc caa cag aag gtc aat ^g ttc tct gaa gaa Arg Tyr Glu Ala Thr Ser Val Gln Gln Lys Val Asn Phe Ser Glu Glu 202 207 212 217 | 1095 |
| gga gaa act gaa gaa gat gat caa gac agc tct cac agc agt gtc act Gly Glu Thr Glu Glu Asp Asp Gln Asp Ser Ser His Ser Ser Val Thr 218 223 228 233 | 1143 |
| act gtt aag gcc aga tcc agg gat tct gat gaa tct gga gat aaa acc Thr Val Lys Ala Arg Ser Arg Asp Ser Asp Glu Ser Gly Asp Lys Thr 234 239 244 249 | 1191 |
| acc aga tca tct agt caa tat ata gaa tca ttt tgg cag tca tca caa Thr Arg Ser Ser Ser Gln Tyr Ile Glu Ser Phe Trp Gln Ser Ser Gln 250 255 260 265 | 1239 |
| agt caa aac ttc aca gct cat gat aag caa cct tca gtg cta agc tca Ser Gln Asn Phe Thr Ala His Asp Lys Gln Pro Ser Val Leu Ser Ser 266 271 276 281 | 1287 |
| gga tat caa aaa act ccc cag gaa tgg gcc cca cac act gca aga ata Gly Tyr Gln Lys Thr Pro Gln Glu Trp Ala Pro His Thr Ala Arg Ile 282 287 292 297 | 1335 |
| agg acc agg atg caa aat gac agc att ctg aaa tca gag ctt gga aac Arg Thr Arg Met Gln Asn Asp Ser Ile Leu Lys Ser Glu Leu Gly Asn 298 303 308 313 | 1383 |
| cag tca cca tca acc tcc agc cga caa gtg act gga caa ccc caa aat Gln Ser Pro Ser Thr Ser Ser Arg Gln Val Thr Gly Gln Pro Gln Asn 314 319 324 329 | 1431 |
| gca tct ttt gtc aag agg aac cgg tgg tgg cta ctt cct ctg ata gct Ala Ser Phe Val Lys Arg Asn Arg Trp Trp Leu Leu Pro Leu Ile Ala 330 335 340 345 | 1479 |
| gct ctt gcc tct ggg agt ttt tgg ttc ttt agt act cct gag gta gaa Ala Leu Ala Ser Gly Ser Phe Trp Phe Phe Ser Thr Pro Glu Val Glu 346 351 356 361 | 1527 |
| acc act gct gtt caa gag ttc cag aac cag atg aat caa ctt aag aat Thr Thr Ala Val Gln Glu Phe Gln Asn Gln Met Asn Gln Leu Lys Asn 362 367 372 377 | 1575 |

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|---|------|
| aag tac caa ggt caa gat gag aag ctg tgg aaa agg agc caa aca ttc | 1623 |
| Lys Tyr Gln Gly Gln Asp Glu Lys Leu Trp Lys Arg Ser Gln Thr Phe | |
| 378 383 388 393 | |
| ctg gaa aaa cat ctt aat agc tcc cat cct cgg tct cag cct gct atc | 1671 |
| Leu Glu Lys His Leu Asn Ser Ser His Pro Arg Ser Gln Pro Ala Ile | |
| 394 399 404 409 | |
| tta ctg ctc act gct gcc cga gat gct gaa gaa gca ctt agg tgt ctg | 1719 |
| Leu Leu Leu Thr Ala Ala Arg Asp Ala Glu Glu Ala Leu Arg Cys Leu | |
| 410 415 420 425 | |
| agt gaa caa att gct gat gcc tat tct tct ttt cgt agt gtc cgt gcc | 1767 |
| Ser Glu Gln Ile Ala Asp Ala Tyr Ser Ser Phe Arg Ser Val Arg Ala | |
| 426 431 436 441 | |
| atc cgg att gat ggg aca gat aaa gct act caa gac agt gat act gtc | 1815 |
| Ile Arg Ile Asp Gly Thr Asp Lys Ala Thr Gln Asp Ser Asp Thr Val | |
| 442 447 452 457 | |
| aaa cta gag gta gac caa gaa ctg agc aat gga ttt aag aat ggc cag | 1863 |
| Lys Leu Glu Val Asp Gln Glu Leu Ser Asn Gly Phe Lys Asn Gly Gln | |
| 458 463 468 473 | |
| aat gca gct gtg gta cac cgc ttt gag tca ttt ccc gca ggc tct act | 1911 |
| Asn Ala Ala Val Val His Arg Phe Glu Ser Phe Pro Ala Gly Ser Thr | |
| 474 479 484 489 | |
| ttg atc ttc tac aaa tat tgt gac cat gaa aac gca gcc ttc aaa gat | 1959 |
| Leu Ile Phe Tyr Lys Tyr Cys Asp His Glu Asn Ala Ala Phe Lys Asp | |
| 490 495 500 505 | |
| gta gcc tta gtc ctg act gtc tta ttg gag gaa gag aca ctt gga aca | 2007 |
| Val Ala Leu Val Leu Thr Val Leu Leu Glu Glu Glu Thr Leu Gly Thr | |
| 506 511 516 521 | |
| agt cta ggc cta aag gaa gtt gaa gaa aaa gta aga gat ttt ctt aaa | 2055 |
| Ser Leu Gly Leu Lys Glu Val Glu Glu Lys Val Arg Asp Phe Leu Lys | |
| 522 527 532 537 | |
| gtc aag ttc acc aat tct aac aca ccc aac tcc tac aat cat atg gac | 2103 |
| Val Lys Phe Thr Asn Ser Asn Thr Pro Asn Ser Tyr Asn His Met Asp | |
| 538 543 548 553 | |
| cca gac aaa ctg aat ggc ctc tgg agc cgt att tct cac tta gtt ctg | 2151 |
| Pro Asp Lys Leu Asn Gly Leu Trp Ser Arg Ile Ser His Leu Val Leu | |
| 554 559 564 569 | |
| cct gtg caa cct gaa aat gcc ctg aaa agg ggc atc tgc tta taa gaa | 2199 |
| Pro Val Gln Pro Glu Asn Ala Leu Lys Arg Gly Ile Cys Leu * | |
| 570 575 580 | |
| gtgagagaga agaaaaatca tgtcccaagt tctgagaatt gttcacactt tctaaccaga | 2259 |
| gacagaattc agagctcttt ttgaaagaac tagtttcttt ttaaagaagt taagtgtta | 2319 |
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tgacaggctt gacttgctga gaacactggt taaatatagc acccgcgagc tcagctcctc     240
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ttgggctgtg agacaagcca ctgggttctt caaaggataa actacctaca tagaggacat     600
acctttgggt aaaggagctg ccgtcaggtg gga atg aga tct cga aac caa ggt      654
                               Met Arg Ser Arg Asn Gln Gly
                               1                               5

ggt gaa agt gca tct gat ggg cat atc tcc tgt ccc aag ccc tcc atc      702
Gly Glu Ser Ala Ser Asp Gly His Ile Ser Cys Pro Lys Pro Ser Ile
  8                               13                               18                               23

atc ggc aat gct ggt gaa aaa agt ctc tca gaa gat gca aaa aag aag      750
Ile Gly Asn Ala Gly Glu Lys Ser Leu Ser Glu Asp Ala Lys Lys Lys
  24                               29                               34                               39

aag aaa tca aat agg aag gag gat gat gtc atg gcc tca gga act gtc      798
Lys Lys Ser Asn Arg Lys Glu Asp Asp Val Met Ala Ser Gly Thr Val
  40                               45                               50                               55

aaa cga cac cta aaa aca tct gga gaa tgt gaa cga aaa act aag aaa      846
Lys Arg His Leu Lys Thr Ser Gly Glu Cys Glu Arg Lys Thr Lys Lys
  56                               61                               66                               71

tcc ctg gag tta tcc aaa gaa gac ctc atc caa cta ctc agt ata atg      894
Ser Leu Glu Leu Ser Lys Glu Asp Leu Ile Gln Leu Leu Ser Ile Met
  72                               77                               82                               87

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| | |
|---|------|
| gaa ggg gag ttg cag gcc aga gaa gat gtg atc cac atg ctg aag aca | 942 |
| Glu Gly Glu Leu Gln Ala Arg Glu Asp Val Ile His Met Leu Lys Thr | |
| 88 93 98 103 | |
| gag aaa acc aag cct gag gtt ctg gag gct cat tac ggg tct gcg gag | 990 |
| Glu Lys Thr Lys Pro Glu Val Leu Glu Ala His Tyr Gly Ser Ala Glu | |
| 104 109 114 119 | |
| cca gag aaa gtg ctg cgg gtc ctg cac cga gat gcc att ctt gcc cag | 1038 |
| Pro Glu Lys Val Leu Arg Val Leu His Arg Asp Ala Ile Leu Ala Gln | |
| 120 125 130 135 | |
| gag aaa tcc ata gga gaa gat gtc tat gag aaa ccg att tca gag ctg | 1086 |
| Glu Lys Ser Ile Gly Glu Asp Val Tyr Glu Lys Pro Ile Ser Glu Leu | |
| 136 141 146 151 | |
| gac aga ctt gag gaa aaa cag aaa gaa acc tac cgg cgc atg cta gag | 1134 |
| Asp Arg Leu Glu Glu Lys Gln Lys Glu Thr Tyr Arg Arg Met Leu Glu | |
| 152 157 162 167 | |
| cag ctg ttg ctg gcc gag aag tgt cat agg cgc acc gta tac gag tta | 1182 |
| Gln Leu Leu Leu Ala Glu Lys Cys His Arg Arg Thr Val Tyr Glu Leu | |
| 168 173 178 183 | |
| gag aac gag aag cat aaa cac act gac tac atg aac aag agc gac gac | 1230 |
| Glu Asn Glu Lys His Lys His Thr Asp Tyr Met Asn Lys Ser Asp Asp | |
| 184 189 194 199 | |
| ttc acc aac ctg ctg gag cag gag cgg gag agg tta aaa aag ctc ctt | 1278 |
| Phe Thr Asn Leu Leu Glu Gln Glu Arg Glu Arg Leu Lys Lys Leu Leu | |
| 200 205 210 215 | |
| gaa caa gaa aag gct tat caa gcc cgc aaa gaa aag gaa aat gct aaa | 1326 |
| Glu Gln Glu Lys Ala Tyr Gln Ala Arg Lys Glu Lys Glu Asn Ala Lys | |
| 216 221 226 231 | |
| cga ctc aat aaa cta aga gat gag ctt gtt aaa ctc aaa tcc ttt gca | 1374 |
| Arg Leu Asn Lys Leu Arg Asp Glu Leu Val Lys Leu Lys Ser Phe Ala | |
| 232 237 242 247 | |
| ctc atg ctg gtg gat gaa aga caa atg cac att gaa caa ctt ggc ctg | 1422 |
| Leu Met Leu Val Asp Glu Arg Gln Met His Ile Glu Gln Leu Gly Leu | |
| 248 253 258 263 | |
| caa agc cag aaa gta cag gat ctt act cag aag ctg agg gaa gaa gaa | 1470 |
| Gln Ser Gln Lys Val Gln Asp Leu Thr Gln Lys Leu Arg Glu Glu Glu | |
| 264 269 274 279 | |
| gag aag ctc aaa gcc att act tcc aaa tcc aaa gaa gac aga cag aaa | 1518 |
| Glu Lys Leu Lys Ala Ile Thr Ser Lys Ser Lys Glu Asp Arg Gln Lys | |
| 280 285 290 295 | |
| ttg ctc aag tta gaa gtg gac ttt gaa cac aag gct tcg agg ttt tct | 1566 |
| Leu Leu Lys Leu Glu Val Asp Phe Glu His Lys Ala Ser Arg Phe Ser | |
| 296 301 306 311 | |

| | |
|---|------|
| caa gag cat gaa gag atg aac gct aaa ctg gct aat caa gag tct cac | 1614 |
| Gln Glu His Glu Glu Met Asn Ala Lys Leu Ala Asn Gln Glu Ser His | |
| 312 317 322 327 | |
| aat agg caa ctt aga ctc aag ctg gtt ggc tta acc caa aga atc gag | 1662 |
| Asn Arg Gln Leu Arg Leu Lys Leu Val Gly Leu Thr Gln Arg Ile Glu | |
| 328 333 338 343 | |
| gag cta gaa gag acc aac aaa aat ctg cag aag gca gag gaa gaa ctt | 1710 |
| Glu Leu Glu Glu Thr Asn Lys Asn Leu Gln Lys Ala Glu Glu Glu Leu | |
| 344 349 354 359 | |
| caa gaa tta aga gat aaa att gcc aaa gga gaa tgt gga aac tct agc | 1758 |
| Gln Glu Leu Arg Asp Lys Ile Ala Lys Gly Glu Cys Gly Asn Ser Ser | |
| 360 365 370 375 | |
| ctc atg gca gaa gtg gaa aat ctt cga aag cgt gtg ctt gaa atg gaa | 1806 |
| Leu Met Ala Glu Val Glu Asn Leu Arg Lys Arg Val Leu Glu Met Glu | |
| 376 381 386 391 | |
| ggt aaa gat gag gag atc act aaa act gaa tcc cag tgt agg gaa ttg | 1854 |
| Gly Lys Asp Glu Glu Ile Thr Lys Thr Glu Ser Gln Cys Arg Glu Leu | |
| 392 397 402 407 | |
| agg aag aag ctg caa gag gaa gaa cac cat agt aag gag ctc aga ctt | 1902 |
| Arg Lys Lys Leu Gln Glu Glu Glu His His Ser Lys Glu Leu Arg Leu | |
| 408 413 418 423 | |
| gaa gtt gag aag cta cag aag aga atg tct gaa cta gag aaa ttg gaa | 1950 |
| Glu Val Glu Lys Leu Gln Lys Arg Met Ser Glu Leu Glu Lys Leu Glu | |
| 424 429 434 439 | |
| gaa gca ttt agc aag agt aaa tct gag tgc acc cag cta cat tta aat | 1998 |
| Glu Ala Phe Ser Lys Ser Lys Ser Glu Cys Thr Gln Leu His Leu Asn | |
| 440 445 450 455 | |
| ctg gag aaa gaa aag aac tta acc aaa gac ctg cta aat gaa ttg gag | 2046 |
| Leu Glu Lys Glu Lys Asn Leu Thr Lys Asp Leu Leu Asn Glu Leu Glu | |
| 456 461 466 471 | |
| gtg gtc aag agt cga gtt aaa gaa ttg gaa tgt tct gaa agt aga ttg | 2094 |
| Val Val Lys Ser Arg Val Lys Glu Leu Glu Cys Ser Glu Ser Arg Leu | |
| 472 477 482 487 | |
| gaa aag gct gaa tta agc cta aaa gat gat ctt acc aag ttg aag tca | 2142 |
| Glu Lys Ala Glu Leu Ser Leu Lys Asp Asp Leu Thr Lys Leu Lys Ser | |
| 488 493 498 503 | |
| ttt acc gtg atg ctg gtt gat gaa agg aaa aat atg atg gaa aaa ata | 2190 |
| Phe Thr Val Met Leu Val Asp Glu Arg Lys Asn Met Met Glu Lys Ile | |
| 504 509 514 519 | |
| aaa caa gaa gag aga aaa gtg gat gga ctc aat aaa aat ttt aag gtg | 2238 |
| Lys Gln Glu Glu Arg Lys Val Asp Gly Leu Asn Lys Asn Phe Lys Val | |
| 520 525 530 535 | |
| gaa caa gga aaa gtt atg gat gta act gaa aaa cta att gaa gaa agt | 2286 |

| | |
|---|------|
| Glu Gln Gly Lys Val Met Asp Val Thr Glu Lys Leu Ile Glu Glu Ser | |
| 536 541 546 551 | |
| aag aaa ctt tta aaa cta aaa tct gaa atg gag gaa aaa gta tac aac | 2334 |
| Lys Lys Leu Leu Lys Leu Lys Ser Glu Met Glu Glu Lys Val Tyr Asn | |
| 552 557 562 567 | |
| ttg aca aga gaa aga gat gag ttg ata ggc aaa ttg aaa agt gaa gaa | 2382 |
| Leu Thr Arg Glu Arg Asp Glu Leu Ile Gly Lys Leu Lys Ser Glu Glu | |
| 568 573 578 583 | |
| gaa aaa tcc tct gaa tta agc tgc agt gtt gac tta cta aag aag aga | 2430 |
| Glu Lys Ser Ser Glu Leu Ser Cys Ser Val Asp Leu Leu Lys Lys Arg | |
| 584 589 594 599 | |
| ctt gat ggt ata gag gaa gtg gaa aga gaa ata aca aga gga agg tca | 2478 |
| Leu Asp Gly Ile Glu Glu Val Glu Arg Glu Ile Thr Arg Gly Arg Ser | |
| 600 605 610 615 | |
| cga aaa ggg tct gag ctc acc tgc ccg gaa gat aat aag att aag gaa | 2526 |
| Arg Lys Gly Ser Glu Leu Thr Cys Pro Glu Asp Asn Lys Ile Lys Glu | |
| 616 621 626 631 | |
| cta aca ctt gaa att gag aga ctg aag aaa cgt ctc caa caa ttg gaa | 2574 |
| Leu Thr Leu Glu Ile Glu Arg Leu Lys Lys Arg Leu Gln Gln Leu Glu | |
| 632 637 642 647 | |
| gtg gtc gaa ggg gat ttg atg aag aca gaa gat gag tat gat cag ctg | 2622 |
| Val Val Glu Gly Asp Leu Met Lys Thr Glu Asp Glu Tyr Asp Gln Leu | |
| 648 653 658 663 | |
| gaa cag aaa ttt aga act gag cag gat aag gct aac ttc ctc tct caa | 2670 |
| Glu Gln Lys Phe Arg Thr Glu Gln Asp Lys Ala Asn Phe Leu Ser Gln | |
| 664 669 674 679 | |
| caa cta gag gag atc aag cac caa att gcc aag aat aaa gca ata gag | 2718 |
| Gln Leu Glu Glu Ile Lys His Gln Ile Ala Lys Asn Lys Ala Ile Glu | |
| 680 685 690 695 | |
| aag ggt gag gtt gtg agc cag gaa gct gaa ctg aga cac aga ttt cgg | 2766 |
| Lys Gly Glu Val Val Ser Gln Glu Ala Glu Leu Arg His Arg Phe Arg | |
| 696 701 706 711 | |
| ttg gaa gaa gct aaa agt cga gac tta aaa gcc gaa gta caa gct ctt | 2814 |
| Leu Glu Glu Ala Lys Ser Arg Asp Leu Lys Ala Glu Val Gln Ala Leu | |
| 712 717 722 727 | |
| aaa gag aag att cac gaa tta atg aac aaa gaa gat cag ctt tct cag | 2862 |
| Lys Glu Lys Ile His Glu Leu Met Asn Lys Glu Asp Gln Leu Ser Gln | |
| 728 733 738 743 | |
| ctc cag gta gat tat tct gta ctt caa caa aga ttt atg gaa gaa gaa | 2910 |
| Leu Gln Val Asp Tyr Ser Val Leu Gln Gln Arg Phe Met Glu Glu Glu | |
| 744 749 754 759 | |
| aat aag aac aaa aac atg ggg cag gag gtt ctc aat ctg acc aaa gag | 2958 |
| Asn Lys Asn Lys Asn Met Gly Gln Glu Val Leu Asn Leu Thr Lys Glu | |

| 760 | 765 | 770 | 775 | |
|---|-----|-----|-----|------|
| ttg gag ctt tcc aag cgc tac agc aga gct ctt agg ccc agt gtg aat | | | | 3006 |
| Leu Glu Leu Ser Lys Arg Tyr Ser Arg Ala Leu Arg Pro Ser Val Asn | | | | |
| 776 | 781 | 786 | 791 | |
| gga aga aga atg gtg gat gtt cct gtg acg tca act gga gtc caa act | | | | 3054 |
| Gly Arg Arg Met Val Asp Val Pro Val Thr Ser Thr Gly Val Gln Thr | | | | |
| 792 | 797 | 802 | 807 | |
| gat gca gtc agc ggt gaa gca gca gag gaa gaa acg cca gct gta ttc | | | | 3102 |
| Asp Ala Val Ser Gly Glu Ala Ala Glu Glu Glu Thr Pro Ala Val Phe | | | | |
| 808 | 813 | 818 | 823 | |
| ata cgg aaa tcc ttc cag gaa gaa aat cat att atg agt aat ctt cgg | | | | 3150 |
| Ile Arg Lys Ser Phe Gln Glu Glu Asn His Ile Met Ser Asn Leu Arg | | | | |
| 824 | 829 | 834 | 839 | |
| cag gtg gga ttg aag aaa ccc gtg gaa aga tct tct gtt cta gac agg | | | | 3198 |
| Gln Val Gly Leu Lys Lys Pro Val Glu Arg Ser Ser Val Leu Asp Arg | | | | |
| 840 | 845 | 850 | 855 | |
| tat cct cca gca gca aat gag ctc act atg aga aag tct tgg att cca | | | | 3246 |
| Tyr Pro Pro Ala Ala Asn Glu Leu Thr Met Arg Lys Ser Trp Ile Pro | | | | |
| 856 | 861 | 866 | 871 | |
| tgg atg aga aag agg gaa aac ggc ccc tcc atc act cag gag aaa ggg | | | | 3294 |
| Trp Met Arg Lys Arg Glu Asn Gly Pro Ser Ile Thr Gln Glu Lys Gly | | | | |
| 872 | 877 | 882 | 887 | |
| ccc cga aca aat tcc agt cca ggg cac cca gga gag gta gtc ctt tca | | | | 3342 |
| Pro Arg Thr Asn Ser Ser Pro Gly His Pro Gly Glu Val Val Leu Ser | | | | |
| 888 | 893 | 898 | 903 | |
| cca aag cag ggc cag ccc ctg cat att cga gtg aca cca gac cac gag | | | | 3390 |
| Pro Lys Gln Gly Gln Pro Leu His Ile Arg Val Thr Pro Asp His Glu | | | | |
| 904 | 909 | 914 | 919 | |
| aac agc act gcg act ttg gag ata aca agc ccg aca tct gaa gaa ttt | | | | 3438 |
| Asn Ser Thr Ala Thr Leu Glu Ile Thr Ser Pro Thr Ser Glu Glu Phe | | | | |
| 920 | 925 | 930 | 935 | |
| ttt tct agt acc act gtc att cct acc tta ggg aat cag aaa cca aga | | | | 3486 |
| Phe Ser Ser Thr Thr Val Ile Pro Thr Leu Gly Asn Gln Lys Pro Arg | | | | |
| 936 | 941 | 946 | 951 | |
| ata acc att att cca tca cca aac gtt atg cct caa aaa caa aaa agt | | | | 3534 |
| Ile Thr Ile Ile Pro Ser Pro Asn Val Met Pro Gln Lys Gln Lys Ser | | | | |
| 952 | 957 | 962 | 967 | |
| gga gat act act ctt ggc cca gaa cga gcc atg tcc cca gtc aca att | | | | 3582 |
| Gly Asp Thr Thr Leu Gly Pro Glu Arg Ala Met Ser Pro Val Thr Ile | | | | |
| 968 | 973 | 978 | 983 | |
| act aca ttt tcc aga gag aag act cca gaa agt gga aga ggc gca ttt | | | | 3630 |
| Thr Thr Phe Ser Arg Glu Lys Thr Pro Glu Ser Gly Arg Gly Ala Phe | | | | |
| 984 | 989 | 994 | 999 | |

| | |
|--|------|
| gca gac agg ccc aca tcc cct att cag ata atg acg gtg tct aca tca | 3678 |
| Ala Asp Arg Pro Thr Ser Pro Ile Gln Ile Met Thr Val Ser Thr Ser | |
| 1000 1005 1010 1015 | |
| gca gca cca gct gag att gca gtt tct ccc gaa tcc cag gaa atg ccc | 3726 |
| Ala Ala Pro Ala Glu Ile Ala Val Ser Pro Glu Ser Gln Glu Met Pro | |
| 1016 1021 1026 1031 | |
| atg gga cgg aca atc ctc aaa gtc acc cca gaa aaa cag act gtt cca | 3774 |
| Met Gly Arg Thr Ile Leu Lys Val Thr Pro Glu Lys Gln Thr Val Pro | |
| 1032 1037 1042 1047 | |
| act cca gta cgg aaa tac aac tcc aat gcc aat atc ata acc aca gag | 3822 |
| Thr Pro Val Arg Lys Tyr Asn Ser Asn Ala Asn Ile Ile Thr Thr Glu | |
| 1048 1053 1058 1063 | |
| gac aat aaa att cac att cac tta ggg tct cag ttt aaa cgg tcc cct | 3870 |
| Asp Asn Lys Ile His Ile His Leu Gly Ser Gln Phe Lys Arg Ser Pro | |
| 1064 1069 1074 1079 | |
| ggg act tca ggt gaa gga gtc agt cca gtt att act gtc cga cca gta | 3918 |
| Gly Thr Ser Gly Glu Gly Val Ser Pro Val Ile Thr Val Arg Pro Val | |
| 1080 1085 1090 1095 | |
| aac gtg aca gcc gaa aag gag gtt tcc acc ggc act gtc ctt cgc tct | 3966 |
| Asn Val Thr Ala Glu Lys Glu Val Ser Thr Gly Thr Val Leu Arg Ser | |
| 1096 1101 1106 1111 | |
| ccc agg aat cac ctc tcc tca cgg cct ggt gca agc aaa gtg acg agc | 4014 |
| Pro Arg Asn His Leu Ser Ser Arg Pro Gly Ala Ser Lys Val Thr Ser | |
| 1112 1117 1122 1127 | |
| act atc acc ata aca ccg gtc aca acg tca tct gct cga gga acc cag | 4062 |
| Thr Ile Thr Ile Thr Pro Val Thr Thr Ser Ser Ala Arg Gly Thr Gln | |
| 1128 1133 1138 1143 | |
| tca gtg tca gga caa gac ggg tca tcc cag cgg cct aca ccc acc cgc | 4110 |
| Ser Val Ser Gly Gln Asp Gly Ser Ser Gln Arg Pro Thr Pro Thr Arg | |
| 1144 1149 1154 1159 | |
| att cct atg tca aaa ggt atg aaa gca gga aag cca gta gtg gca gcc | 4158 |
| Ile Pro Met Ser Lys Gly Met Lys Ala Gly Lys Pro Val Val Ala Ala | |
| 1160 1165 1170 1175 | |
| cca gga gca gga aat ctg acc aaa ttc gag cct cga gct gag act cag | 4206 |
| Pro Gly Ala Gly Asn Leu Thr Lys Phe Glu Pro Arg Ala Glu Thr Gln | |
| 1176 1181 1186 1191 | |
| tct atg aaa ata gag ctg aag aaa tct gca gcc agc agc acc acc tct | 4254 |
| Ser Met Lys Ile Glu Leu Lys Lys Ser Ala Ala Ser Ser Thr Thr Ser | |
| 1192 1197 1202 1207 | |
| ctc gga ggg ggg aag ggc tga gg gcagtggcta aggggggtatg ttgtgcagat | 4307 |
| Leu Gly Gly Gly Lys Gly * | |
| 1208 1213 | |

gctactgctg ccgtgaaagt gaaccttcat ctgtttgtgc cagttcttta catgtactaa 4367
 ttttaagtttt aaatattgtg tttataaaaat aaccaactaa taaccatttg tctttcccat 4427
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 tgggcccggg ggatcccggg gggcoggacc agtggtccccc agttgtggga gcagacgcgt 180
 gggcgcatcg cgggcgggca gggcctgaag tgcagct atg ttt cca gtg ttc tct 235
 Met Phe Pro Val Phe Ser
 1
 ggc tgt ttc caa gag cta caa gaa aag aat aaa tct ctg gag ttg gtg 283
 Gly Cys Phe Gln Glu Leu Gln Glu Lys Asn Lys Ser Leu Glu Leu Val
 7 12 17 22
 tcc ttt gag gag gta gct gtg cac ttc acc tgg gag gag tgg cag gac 331
 Ser Phe Glu Glu Val Ala Val His Phe Thr Trp Glu Glu Trp Gln Asp
 23 28 33 38
 ctg gat gac gct cag agg acc ctg tac agg gac gtg atg ctg gag acc 379
 Leu Asp Asp Ala Gln Arg Thr Leu Tyr Arg Asp Val Met Leu Glu Thr
 39 44 49 54
 tac agc agc ctg gta tca ttg ggg cat tgc att acc aaa cct gag atg 427
 Tyr Ser Ser Leu Val Ser Leu Gly His Cys Ile Thr Lys Pro Glu Met

| 55 | 60 | 65 | 70 | |
|---|-----|-----|-----|-----|
| atc ttc aag cta gag caa gga gca gag cca tgg ata gta gaa gaa acc | | | | 475 |
| Ile Phe Lys Leu Glu Gln Gly Ala Glu Pro Trp Ile Val Glu Glu Thr | | | | |
| 71 | 76 | 81 | 86 | |
| cta aac ctg aga ctt tca ggt gga agc aag aag caa gtt ttc tca ggt | | | | 523 |
| Leu, Asn Leu Arg Leu Ser Gly Gly Ser Lys Lys Gln Val Phe Ser Gly | | | | |
| 87 | 92 | 97 | 102 | |
| att tgc cac aag agc ctg gtg gag ctc caa gag gtt cat ttg gtc tga | | | | 571 |
| Ile Cys His Lys Ser Leu Val Glu Leu Gln Glu Val His Leu Val * | | | | |
| 103 | 108 | 113 | 118 | |
| tggattcagg taccattgaa attctgatag tttcaaaatc ttttatctcc aggtttgagc | | | | 631 |
| tctcttgtga actctggaac tgtattccca actgtcaatt ggacatccct acgcatggga | | | | 691 |
| cctcagatat ttcacacatg atgtg | | | | 716 |

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<220>
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| agatctctcg aggatccgaa ttcgcggccg cgtcgacgcg gagggagccc cagacacggt | 120 |
| ccgcgggaga gctgtggggc ttggtgagtg tttcgtggcc tctcgggttg gtcagcaccc | 180 |
| ccagccagct ggcccaggac ccctctacag aagtccagga gagcaggcgt caccaag | 237 |
| atg tcc aac ccc ttc ctg aag caa gtc ttc aac aag gac aag aca ttc | 285 |
| Met Ser Asn Pro Phe Leu Lys Gln Val Phe Asn Lys Asp Lys Thr Phe | |
| 1 5 10 15 | |
| cgc ccc aag cgc aag ttt gag cca ggc acc cag cgc ttc gag ctg cac | 333 |
| Arg Pro Lys Arg Lys Phe Glu Pro Gly Thr Gln Arg Phe Glu Leu His | |
| 17 22 27 32 | |
| aag aag gcg cag gcg tcg ctg aac gcc ggg ctg gac ctg cgg ctg gcc | 381 |
| Lys Lys Ala Gln Ala Ser Leu Asn Ala Gly Leu Asp Leu Arg Leu Ala | |
| 33 38 43 48 | |
| gtg cag ttg ccc ccg ggc gag gac ctg aac gac tgg gtg gct gtt cac | 429 |
| Val Gln Leu Pro Pro Gly Glu Asp Leu Asn Asp Trp Val Ala Val His | |
| 49 54 59 64 | |
| gtg gtg gac ttc ttt aac cgc gtc aac ctc atc tac ggc acc atc agc | 477 |

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Val | Val | Asp | Phe | Phe | Asn | Arg | Val | Asn | Leu | Ile | Tyr | Gly | Thr | Ile | Ser |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 |

| | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| gac | ggc | tgc | acg | gag | cag | tcc | tgc | ccc | gtc | atg | tcg | ggg | ggc | ccc | aag | 525 |
| Asp | Gly | Cys | Thr | Glu | Gln | Ser | Cys | Pro | Val | Met | Ser | Gly | Gly | Pro | Lys | |
| 81 | | | | | 86 | | | | | 91 | | | | | 96 | |

| | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| tat | gag | tac | cgc | tgg | cag | gat | gag | cat | aag | ttc | cgg | aag | ccc | acg | gca | 573 |
| Tyr | Glu | Tyr | Arg | Trp | Gln | Asp | Glu | His | Lys | Phe | Arg | Lys | Pro | Thr | Ala | |
| 97 | | | | | 102 | | | | | 107 | | | | | 112 | |

| | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| ctc | tcc | gcg | ccc | agg | tac | atg | gac | ctg | ctg | atg | gac | tgg | atc | gag | gcg | 621 |
| Leu | Ser | Ala | Pro | Arg | Tyr | Met | Asp | Leu | Leu | Met | Asp | Trp | Ile | Glu | Ala | |
| 113 | | | | | 118 | | | | | 123 | | | | | 128 | |

| | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| cag | atc | aac | aac | gag | gac | ctc | ttc | ccc | acc | aac | gtt | ggc | act | ccg | ttt | 669 |
| Gln | Ile | Asn | Asn | Glu | Asp | Leu | Phe | Pro | Thr | Asn | Val | Gly | Thr | Pro | Phe | |
| 129 | | | | | 134 | | | | | 139 | | | | | 144 | |

| | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| ccc | aag | aac | ttc | ctg | cag | acg | gtg | cgg | aag | atc | ctg | tcg | cgg | ctg | ttc | 717 |
| Pro | Lys | Asn | Phe | Leu | Gln | Thr | Val | Arg | Lys | Ile | Leu | Ser | Arg | Leu | Phe | |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 | |

| | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| cgc | gtg | ttc | gtg | cac | gtc | tac | atc | cac | cac | ttt | gac | cgc | atc | gcg | cag | 765 |
| Arg | Val | Phe | Val | His | Val | Tyr | Ile | His | His | Phe | Asp | Arg | Ile | Ala | Gln | |
| 161 | | | | | 166 | | | | | 171 | | | | | 176 | |

| | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| atg | ggc | tcc | gag | gcc | cac | gtg | aac | acc | tgc | tac | aag | cac | ttc | tac | tat | 813 |
| Met | Gly | Ser | Glu | Ala | His | Val | Asn | Thr | Cys | Tyr | Lys | His | Phe | Tyr | Tyr | |
| 177 | | | | | 182 | | | | | 187 | | | | | 192 | |

| | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| ttc | gtc | aag | gag | ttc | ggc | ctc | atc | gac | acc | aag | gag | ctg | gag | cca | ctg | 861 |
| Phe | Val | Lys | Glu | Phe | Gly | Leu | Ile | Asp | Thr | Lys | Glu | Leu | Glu | Pro | Leu | |
| 193 | | | | | 198 | | | | | 203 | | | | | 208 | |

| | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|---|------------|------------|--|--|--|-----|
| aaa | gaa | atg | acc | gcc | cgg | atg | tgc | cac | tga | g | agccccgcgg | gtctcccggt | | | | 912 |
| Lys | Glu | Met | Thr | Ala | Arg | Met | Cys | His | * | | | | | | | |
| 209 | | | | | 214 | | | | | | | | | | | |

| | | | | | | | |
|------------|------------|------------|------------|------------|------------|--|-----|
| gcccgaaccg | ccgctggggc | ctcggagact | tggaggagga | cgctctggaa | ccatcatccc | | 972 |
|------------|------------|------------|------------|------------|------------|--|-----|

| | | | | | | | |
|------------|------------|------------|------------|------------|------------|--|------|
| gcttctctcc | ggcctgagca | tctcagggag | accagggggc | gagccgctga | gcaggtgttg | | 1032 |
|------------|------------|------------|------------|------------|------------|--|------|

| | | | | | | | |
|------------|------------|------------|------------|------------|------------|--|------|
| gtcctcagga | gctccaaccc | cggacggcag | atgccttcct | cagtctcgag | cctcagttct | | 1092 |
|------------|------------|------------|------------|------------|------------|--|------|

| | | | | | | | |
|------------|------------|------------|------------|------------|------------|--|------|
| ccgtctggga | ctaaaacgtg | aactctgtaa | ttctatgtgt | tactagcaac | cggaaaagcc | | 1152 |
|------------|------------|------------|------------|------------|------------|--|------|

| | | | | | | | |
|------------|-----------|------------|------------|------------|------------|--|------|
| cactgtgttt | ttaaacact | tccactttcc | aggaggctgg | atggcttcca | gggtcactcc | | 1212 |
|------------|-----------|------------|------------|------------|------------|--|------|

| | | | | | | | |
|------------|------------|------------|------------|------------|-----------|--|------|
| ttgccctggg | tggctcccag | gctcctggaa | cttctgcctc | cacctcgctg | gggagcccc | | 1272 |
|------------|------------|------------|------------|------------|-----------|--|------|

| | | | | | | | |
|------------|------------|------------|------------|------------|------------|--|------|
| agggctgctg | tggccacagc | cctgcctggg | cctgtctctc | aagggcaccc | agcttgctcg | | 1332 |
|------------|------------|------------|------------|------------|------------|--|------|

| | | | | | | | |
|------------|-----------|------------|------------|------------|-----------|--|------|
| gcctcctaca | tgtctcccg | tggggaggca | agaggctgag | gggcttccga | gccctgaga | | 1392 |
|------------|-----------|------------|------------|------------|-----------|--|------|

| | | | | | | | |
|------------|------------|------------|------------|------------|------------|--|------|
| gcggacatct | cctcccgcag | gcctttactc | cgcactcccc | actggcagcc | gctggtgtct | | 1452 |
|------------|------------|------------|------------|------------|------------|--|------|

cttcacacag aggcacaacc tggacccagg cagcctcttt cctccctccc caatctcttc 1512
catttttcta cagatttttt ttttttttgg tcatactaga gacaggggtc tcgctgaact 1572
cctggcctcc agtgatcctc catcctcggc ctcccaaagt gctggaatca caggggtgag 1632
ccaccgcgcc cagccctctc tcttcctcaa tgcactctgc ttct 1676

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cacagtgata agaggtgtct tttttgttta ttattaaaga aatgacgtat tgggacagaa 120
gtctaggaga aactgataaa acattaattg aaatgaaaat gccaaagaaa taaaggtctg 180
tgaatagtag gcacgtgaga ggatatatta aggctgcatt attatgtttg cttttaccag 240
tga atg aat tat gag ctt aat ttc aaa cgt gaa atg cct aac ata aaa 288
Met Asn Tyr Glu Leu Asn Phe Lys Arg Glu Met Pro Asn Ile Lys
1 5 10
agt ctt gga ttg aca aat ctg aac ttt ctg tta aaa aga tta agt tct 336
Ser Leu Gly Leu Thr Asn Leu Asn Phe Leu Leu Lys Arg Leu Ser Ser
16 21 26 31
gta ctt cct tta att aca gat tat gtc tac ttt gag aat tcc tcc agc 384
Val Leu Pro Leu Ile Thr Asp Tyr Val Tyr Phe Glu Asn Ser Ser Ser
32 37 42 47
aac cca tac cta ata aga agg ata gaa gaa ctc aac aag act gca agt 432
Asn Pro Tyr Leu Ile Arg Arg Ile Glu Glu Leu Asn Lys Thr Ala Ser
48 53 58 63
ggc aac gtg gaa gca aaa gta gta tgc ttt tat aga cga cgt gat att 480
Gly Asn Val Glu Ala Lys Val Val Cys Phe Tyr Arg Arg Arg Asp Ile
64 69 74 79
tcc aac aca ctt ata atg ctc gca gat aag cat gct aaa gaa att gag 528
Ser Asn Thr Leu Ile Met Leu Ala Asp Lys His Ala Lys Glu Ile Glu
80 85 90 95

| | |
|---|------|
| gaa gaa tct gaa aca aca gtt gag gct gac ttg acc gat aag cag aaa Glu Glu Ser Glu Thr Thr Val Glu Ala Asp Leu Thr Asp Lys Gln Lys 96 101 106 111 | 576 |
| cat cag ttg aaa cat agg gaa ctc ttt ttg tca cgc cag tat gaa tct His Gln Leu Lys His Arg Glu Leu Phe Leu Ser Arg Gln Tyr Glu Ser 112 117 122 127 | 624 |
| ctg ccc gca aca cat atc agg gga aag tgc agt gtt gcc ctt ctg aat Leu Pro Ala Thr His Ile Arg Gly Lys Cys Ser Val Ala Leu Leu Asn 128 133 138 143 | 672 |
| gag aca gaa tca gta ttg tca tat ctt gat aag gag gat acc ttc ttc Glu Thr Glu Ser Val Leu Ser Tyr Leu Asp Lys Glu Asp Thr Phe Phe 144 149 154 159 | 720 |
| tac tca ttg gtc tat gac ccc tca ttg aaa aca cta tta gct gac aaa Tyr Ser Leu Val Tyr Asp Pro Ser Leu Lys Thr Leu Leu Ala Asp Lys 160 165 170 175 | 768 |
| ggt gaa atc aga gtg gga cct aga tat caa gca gac att cca gaa atg Gly Glu Ile Arg Val Gly Pro Arg Tyr Gln Ala Asp Ile Pro Glu Met 176 181 186 191 | 816 |
| ctg tta gaa gga gaa tca gat gag agg gaa caa tca aaa ttg gaa gtt Leu Leu Glu Gly Glu Ser Asp Glu Arg Glu Gln Ser Lys Leu Glu Val 192 197 202 207 | 864 |
| aaa gtt tgg gat cca aat agc cca ctt acg gat cga cag att gac cag Lys Val Trp Asp Pro Asn Ser Pro Leu Thr Asp Arg Gln Ile Asp Gln 208 213 218 223 | 912 |
| ttt tta gtt gta gca cgt gct gtt ggg aca ttc gcc aga gcc ctg gat Phe Leu Val Val Ala Arg Ala Val Gly Thr Phe Ala Arg Ala Leu Asp 224 229 234 239 | 960 |
| tgc agc agt tct gtg agg cag cct agt ttg cat atg agt gct gct gca Cys Ser Ser Ser Val Arg Gln Pro Ser Leu His Met Ser Ala Ala Ala 240 245 250 255 | 1008 |
| gct tcc cga gac atc acc ttg ttt cac gct atg gat aca ttg tat aga Ala Ser Arg Asp Ile Thr Leu Phe His Ala Met Asp Thr Leu Tyr Arg 256 261 266 271 | 1056 |
| cac agc tat gat ttg agc agt gcc att agt gtc tta gta cca ctc gga His Ser Tyr Asp Leu Ser Ser Ala Ile Ser Val Leu Val Pro Leu Gly 272 277 282 287 | 1104 |
| gga cct gtt tta tgc aga gat gaa atg gag gaa tgg tca gcc tct gaa Gly Pro Val Leu Cys Arg Asp Glu Met Glu Glu Trp Ser Ala Ser Glu 288 293 298 303 | 1152 |
| gct agc tta ttt gaa gag gca ctg gaa aaa tat ggc aaa gac ttc/aat Ala Ser Leu Phe Glu Glu Ala Leu Glu Lys Tyr Gly Lys Asp Phe Asn 304 309 314 319 | 1200 |

| | |
|---|------|
| gac ata cgg caa gat ttt ctt cct tgg aaa tca ttg act agc atc att Asp Ile Arg Gln Asp Phe Leu Pro Trp Lys Ser Leu Thr Ser Ile Ile 320 325 330 335 | 1248 |
| gaa tat tat tac atg tgg aaa act act gac aga tat gtg caa cag aaa Glu Tyr Tyr Tyr Met Trp Lys Thr Thr Asp Arg Tyr Val Gln Gln Lys 336 341 346 351 | 1296 |
| cgt cta aaa gca gca gaa gct gag agt aaa ctg aaa caa gta tat atc Arg Leu Lys Ala Ala Glu Ala Glu Ser Lys Leu Lys Gln Val Tyr Ile 352 357 362 367 | 1344 |
| cca acc tac aaa cca aat ccc aac caa ata tcc act agt aat ggg aag Pro Thr Tyr Lys Pro Asn Pro Asn Gln Ile Ser Thr Ser Asn Gly Lys 368 373 378 383 | 1392 |
| cct ggt gct gtg aat gga gct gtg ggg acc acg ttc cag cct cag aat Pro Gly Ala Val Asn Gly Ala Val Gly Thr Phe Gln Pro Gln Asn 384 389 394 399 | 1440 |
| cct ctc tta ggg aga gcc tgt gag agc tgc tat gct aca cag tct cac Pro Leu Leu Gly Arg Ala Cys Glu Ser Cys Tyr Ala Thr Gln Ser His 400 405 410 415 | 1488 |
| cag tgg tat tct tgg ggc cca cct aat atg cag tgt aga tta tgt gca Gln Trp Tyr Ser Trp Gly Pro Pro Asn Met Gln Cys Arg Leu Cys Ala 416 421 426 431 | 1536 |
| att tgt tgg ctt tat tgg aaa aaa tat gga ggc ttg aaa atg ccc acc Ile Cys Trp Leu Tyr Trp Lys Lys Tyr Gly Gly Leu Lys Met Pro Thr 432 437 442 447 | 1584 |
| cag tca gaa gaa gag aag tta tct cct agc cca act aca gag gac cct Gln Ser Glu Glu Glu Lys Leu Ser Pro Ser Pro Thr Thr Glu Asp Pro 448 453 458 463 | 1632 |
| cgt gtt aga agt cac gtg tcc cgc cag gcc atg cag gga atg cca gtc Arg Val Arg Ser His Val Ser Arg Gln Ala Met Gln Gly Met Pro Val 464 469 474 479 | 1680 |
| cga aac act ggg agt cca aag tct gca gtg aag acc cgc caa gct ttc Arg Asn Thr Gly Ser Pro Lys Ser Ala Val Lys Thr Arg Gln Ala Phe 480 485 490 495 | 1728 |
| ttc ctt cat act aca tat ttc aca aaa ttt gct cgt cag gtc tgc aaa Phe Leu His Thr Thr Tyr Phe Thr Lys Phe Ala Arg Gln Val Cys Lys 496 501 506 511 | 1776 |
| aat acc ctc cgg ctg cgg cag gca gca aga cgg ccg ttt gtt gct att Asn Thr Leu Arg Leu Arg Gln Ala Ala Arg Arg Pro Phe Val Ala Ile 512 517 522 527 | 1824 |
| aat tat gct gcc att agg gca gaa tat gca gac aga cat gct gaa cta Asn Tyr Ala Ala Ile Arg Ala Glu Tyr Ala Asp Arg His Ala Glu Leu 528 533 538 543 | 1872 |
| tct gga agt cca ctg aaa agc aaa agc act agg aag cct ttg gca tgt | 1920 |

| | |
|--|------|
| Ser Gly Ser Pro Leu Lys Ser Lys Ser Thr Arg Lys Pro Leu Ala Cys | |
| 544 549 554 559 | |
| atc att ggg tat tta gag atc cat cct gca aag aaa cct aat gta att | 1968 |
| Ile Ile Gly Tyr Leu Glu Ile His Pro Ala Lys Lys Pro Asn Val Ile | |
| 560 565 570 575 | |
| cga tct aca cca agc ctg caa acc cca act acc aag cgg atg cta aca | 2016 |
| Arg Ser Thr Pro Ser Leu Gln Thr Pro Thr Thr Lys Arg Met Leu Thr | |
| 576 581 586 591 | |
| act cca aat cac aca tct ctg agc att ctg ggg aaa aga aac tac agt | 2064 |
| Thr Pro Asn His Thr Ser Leu Ser Ile Leu Gly Lys Arg Asn Tyr Ser | |
| 592 597 602 607 | |
| cat cac aat ggt ctg gat gaa ctc acg tgc tgt gtg tca gac tga gct | 2112 |
| His His Asn Gly Leu Asp Glu Leu Thr Cys Cys Val Ser Asp * | |
| 608 613 618 | |
| ttccctgatt cattctacaa tccaagactt gctgcactgt cctgctgatg ttcacagccg | 2172 |
| tgccctgggaa gaaggcagcc ccactcccag tacatttcag tgggagacct ctgcnrtgca | 2232 |
| tccacgtgtg gatcagcagc aactcggntt tttttgtcaa agacctcggt | 2282 |
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| gagggcgggc ctccccacac gcccccgccg cccgcgcccc gcgtccaccc gcgccccgct | 120 |
| cccggggact gggagaacag gatagcagca ggagtcgggg ggccgcccga g atg ggg | 177 |
| Met Gly | |
| 1 | |
| aac act acc tcg tgc tgc gtg tcg tcc agt ccc aag ctc cgg agg aat | 225 |
| Asn Thr Thr Ser Cys Cys Val Ser Ser Ser Pro Lys Leu Arg Arg Asn | |
| 3 8 13 18 | |
| gcc cac tcc cgg ctg gag tcc tac cgg cca gac acg gac ctg agc cgc | 273 |
| Ala His Ser Arg Leu Glu Ser Tyr Arg Pro Asp Thr Asp Leu Ser Arg | |
| 19 24 29 34 | |
| gag gac acg ggc tgc aac ctg cag cac atc agc gac cgg gag aac ata | 321 |
| Glu Asp Thr Gly Cys Asn Leu Gln His Ile Ser Asp Arg Glu Asn Ile | |
| 35 40 45 50 | |

| | |
|---|-----|
| gac gat ttg aac atg gaa ttc aat cct tca gat cat cct cgg gcc agc Asp Asp Leu Asn Met Glu Phe Asn Pro Ser Asp His Pro Arg Ala Ser 51 56 61 66 | 369 |
| aca ata ttc ctc agt aaa tct cag aca gac gtg aga gaa aaa cgc aag Thr Ile Phe Leu Ser Lys Ser Gln Thr Asp Val Arg Glu Lys Arg Lys 67 72 77 82 | 417 |
| agt ctc ttc att aac cat cat cct cca gga caa ata gca agg aaa tac Ser Leu Phe Ile Asn His His Pro Pro Gly Gln Ile Ala Arg Lys Tyr 83 88 93 98 | 465 |
| agt tcc tgc tcc acc att ttc cta gat gat agc aca gtc agt caa cca Ser Ser Cys Ser Thr Ile Phe Leu Asp Asp Ser Thr Val Ser Gln Pro 99 104 109 114 | 513 |
| aac ctc aag tat aca att aaa tgt gtc gct ctt gca ata tat tat cac Asn Leu Lys Tyr Thr Ile Lys Cys Val Ala Leu Ala Ile Tyr Tyr His 115 120 125 130 | 561 |
| atc aaa aac agg gac cca gat gga agg atg ctc tta gat att ttt gat Ile Lys Asn Arg Asp Pro Asp Gly Arg Met Leu Leu Asp Ile Phe Asp 131 136 141 146 | 609 |
| gaa aat ctt cac cct ctt tgc aaa tcc gaa gtg cca cca gat tat gac Glu Asn Leu His Pro Leu Ser Lys Ser Glu Val Pro Pro Asp Tyr Asp 147 152 157 162 | 657 |
| aaa cac aac cca gag cag aag cag att tac cgg ttc gtt cgg aca ctg Lys His Asn Pro Glu Gln Lys Gln Ile Tyr Arg Phe Val Arg Thr Leu 163 168 173 178 | 705 |
| ttc agt gct gct cag ctg acg gct gaa tgt gcc atc gtc acc ctg gtg Phe Ser Ala Ala Gln Leu Thr Ala Glu Cys Ala Ile Val Thr Leu Val 179 184 189 194 | 753 |
| tac ctt gaa aga ctt tta aca tac gca gag ata gat atc tgt cgg gcc Tyr Leu Glu Arg Leu Leu Thr Tyr Ala Glu Ile Asp Ile Cys Pro Ala 195 200 205 210 | 801 |
| aac tgg aag cgg att gtt tta ggg gcg atc ctg ctg gcc tcc aag gtg Asn Trp Lys Arg Ile Val Leu Gly Ala Ile Leu Leu Ala Ser Lys Val 211 216 221 226 | 849 |
| tgg gat gac cag gct gta tgg aat gtg gat tac tgc cag atc ctg aaa Trp Asp Asp Gln Ala Val Trp Asn Val Asp Tyr Cys Gln Ile Leu Lys 227 232 237 242 | 897 |
| gac atc acg gtg gag gac atg aac gag cta gag cga cag ttt ctt gaa Asp Ile Thr Val Glu Asp Met Asn Glu Leu Glu Arg Gln Phe Leu Glu 243 248 253 258 | 945 |
| ttg ctg cag ttc aac atc aat gtt cct tcc agt gtc tat gcc aag tat Leu Leu Gln Phe Asn Ile Asn Val Pro Ser Ser Val Tyr Ala Lys Tyr 259 264 269 274 | 993 |

| | |
|---|------|
| tat ttt gat ctt cgt tct ctg gca gaa gcg aac aac ctg agc ttt ccc | 1041 |
| Tyr Phe Asp Leu Arg Ser Leu Ala Glu Ala Asn Asn Leu Ser Phe Pro | |
| 275 280 285 290 | |
| ttg gag ccc ctg agc agg gag agg gct cac aag ctt gag gcc atc tct | 1089 |
| Leu Glu Pro Leu Ser Arg Glu Arg Ala His Lys Leu Glu Ala Ile Ser | |
| 291 296 301 306 | |
| cgc ctc tgc gag gac aag tac aag gac cta aga aga tcc gcg agg aag | 1137 |
| Arg Leu Cys Glu Asp Lys Tyr Lys Asp Leu Arg Arg Ser Ala Arg Lys | |
| 307 312 317 322 | |
| cgc tca gcc agt gca gac aac ctg act ctg ccc cgg tgg tcc cca gcc | 1185 |
| Arg Ser Ala Ser Ala Asp Asn Leu Thr Leu Pro Arg Trp Ser Pro Ala | |
| 323 328 333 338 | |
| atc atc tct taa cta cggaggcccg ccggaggcca caccatccct tagtttctcc | 1240 |
| Ile Ile Ser * | |
| 339 | |
| tttagtttga gaaaagacag acttgggggtg ggtttgtttt tgttttttct ttccttttct | 1300 |
| ttttttacgc atagctccgt caagctgcct ggatgagcgc ccatgcagca aggcttggag | 1360 |
| gaagcgtcag tgccctggag atcccagctc gctctcccga ctgtcagcaa cagcacttcc | 1420 |
| ttcgtggagg aagtggactc gaatcctgga ggaggaaata aagggaaagg gaagtcgtgg | 1480 |
| agaggcaggg aaaatggtta agcagcccgg ccctctggag tccccatggg ggcggtagct | 1540 |
| gaagttggcg agcgcagcgg tggatgcaga gctggctgca cccagggctg ggccagtgtg | 1600 |
| tcctgtaaga cttcttgcat tccttctgct gcttttttgg gatgggggta tttttgttca | 1660 |
| tttgtttttg ccctgttttg attttgggtcc cacagagcag gggatgtagt ttgtacccac | 1720 |
| catggcgcag acttccaaat aaatagtact ggtcatttct ctctgcaacta tatctgcgcg | 1780 |
| ctgtcttctg agctttcttc ctcaccagtg ggctgtgctt gttccatttc tgtacaccct | 1840 |
| tatttatacc gtttttcttc aacaatggcg aaattgactg tagtgctgaa ccaaaagtat | 1900 |
| ccctttccct ccttattcct caccccaaga acattctaga tcacatgggt gcttgtgcct | 1960 |
| tccgattttc ttgcatttgt ttttttctg acctgaagtt gttgttacia aatcagtcag | 2020 |
| actttgtggg ctgaaggaca cggcgcagca gaggggtgtcc ctgtgagagt tctgcagagt | 2080 |
| gctgggcatg tgcoctggaac taccgagtag gagccatttc tttgtacccc tgcctaattcc | 2140 |
| attcctctcc ttccaagtcc attggtgcaa gcaatattct tctcaatttt tatatgttta | 2200 |
| ctttaaatca aagttagtct atttgtataa aatttttaaa aaatctaaaa aaaaaaaaa | 2258 |

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<400> 1070

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| atttggccct cgaggccaag aattcggcac gagcctaggc ggtagaagca gccgcttttc | 60 |
| tgtcatgcgc attgcggaga gtcgttcttc cctctttccc gacttcacca ctcactggga | 120 |
| tcagaccctt gtcatgcgca ttgagagtcc tctagacagg cgctcctcgc agcaccgtag | 180 |
| tgcgcttgcg ctgagcagcc cgcgagggcg gaagtgggag ctgcgaccgc gctccctgtg | 240 |
| aggtgggcaa gcggcgaa atg gcg ccc tcc ggg agt ctt gca gtt ccc ctg | 291 |
| Met Ala Pro Ser Gly Ser Leu Ala Val Pro Leu | |
| 1 5 | |
| gca gtc ctg gtg ctg ttg ctt tgg ggt gct ccc tgg acg cac ggg cgg | 339 |
| Ala Val Leu Val Leu Leu Leu Trp Gly Ala Pro Trp Thr His Gly Arg | |
| 12 17 22 27 | |
| cgg agc aac gtt cgc gtc atc acg gac gag aac tgg aga gaa ctg ctg | 387 |
| Arg Ser Asn Val Arg Val Ile Thr Asp Glu Asn Trp Arg Glu Leu Leu | |
| 28 33 38 43 | |
| gaa gga gac tgg atg ata gaa ttt tat gcc ccg tgg tgc cct gct tgt | 435 |
| Glu Gly Asp Trp Met Ile Glu Phe Tyr Ala Pro Trp Cys Pro Ala Cys | |
| 44 49 54 59 | |
| caa aat ctt caa ccg gaa tgg gaa agt ttt gct gaa tgg gga gaa gat | 483 |
| Gln Asn Leu Gln Pro Glu Trp Glu Ser Phe Ala Glu Trp Gly Glu Asp | |
| 60 65 70 75 | |
| ctt gag gtt aat att gcg aaa gta gat gtc aca gag cag cca gga ctg | 531 |
| Leu Glu Val Asn Ile Ala Lys Val Asp Val Thr Glu Gln Pro Gly Leu | |
| 76 81 86 91 | |
| agt gga cgg ttt atc ata act gct ctt cct act att tat cat tgt aaa | 579 |
| Ser Gly Arg Phe Ile Ile Thr Ala Leu Pro Thr Ile Tyr His Cys Lys | |
| 92 97 102 107 | |
| gat ggt gaa ttt agg cgc tat cag ggt cca agg act aag aag gac ttc | 627 |
| Asp Gly Glu Phe Arg Arg Tyr Gln Gly Pro Arg Thr Lys Lys Asp Phe | |
| 108 113 118 123 | |
| ata aac ttt ata agt gat aaa gag tgg aag agt att gag ccc gtt tca | 675 |
| Ile Asn Phe Ile Ser Asp Lys Glu Trp Lys Ser Ile Glu Pro Val Ser | |
| 124 129 134 139 | |
| tca tgg ttt ggt cca ggt tct gtt ctg atg agt agt atg tca gca ctc | 723 |
| Ser Trp Phe Gly Pro Gly Ser Val Leu Met Ser Ser Met Ser Ala Leu | |
| 140 145 150 155 | |

| | |
|---|------|
| ttt cag cta tct atg tgg atc agg acg tgc cat aac tac ttt att gaa | 771 |
| Phe Gln Leu Ser Met Trp Ile Arg Thr Cys His Asn Tyr Phe Ile Glu | |
| 156 161 166 171 | |
| gac ctt gga ttg cca gtg tgg gga tca tat act gtt ttt gct tta gca | 819 |
| Asp Leu Gly Leu Pro Val Trp Gly Ser Tyr Thr Val Phe Ala Leu Ala | |
| 172 177 182 187 | |
| act ctg ttt tcc gga ctg tta tta gga ctc tgt atg ata ttt gtg gca | 867 |
| Thr Leu Phe Ser Gly Leu Leu Leu Gly Leu Cys Met Ile Phe Val Ala | |
| 188 193 198 203 | |
| gat tgc ctt tgt cct tca aaa agg cgc aga cca cag cca tac cca tac | 915 |
| Asp Cys Leu Cys Pro Ser Lys Arg Arg Arg Pro Gln Pro Tyr Pro Tyr | |
| 204 209 214 219 | |
| cct tca aaa aaa tta tta tca gaa tct gca caa cct ttg aaa aaa gtg | 963 |
| Pro Ser Lys Lys Leu Leu Ser Glu Ser Ala Gln Pro Leu Lys Lys Val | |
| 220 225 230 235 | |
| gag gag gaa caa gag gcg gat gaa gaa gat gtt tca gaa gaa gaa gct | 1011 |
| Glu Glu Glu Gln Glu Ala Asp Glu Glu Asp Val Ser Glu Glu Glu Ala | |
| 236 241 246 251 | |
| gaa agt aaa gaa gga aca aac aaa gac ttt cca cag aat gcc ata aga | 1059 |
| Glu Ser Lys Glu Gly Thr Asn Lys Asp Phe Pro Gln Asn Ala Ile Arg | |
| 252 257 262 267 | |
| caa cgc tct ctg ggt cca tca ttg gcc aca gat aaa tcc tag ttaaatt | 1108 |
| Gln Arg Ser Leu Gly Pro Ser Leu Ala Thr Asp Lys Ser * | |
| 268 273 278 | |
| ttatagttat cttaatat tgaatttgat aaaaacagaa gattgatcat tttgtttggt | 1168 |
| ttgaagtga ctgtgacttt tttgaatatt gcaggggttca gtctagattg tcattaaatt | 1228 |
| gaagagtcta cattcagaac ataaaagcac taggtataca agtttgaaat atgatttaag | 1288 |
| cacagtatga tggtttaaat agttctctaa tttttgaaaa atcgtgccaa gcaataagat | 1348 |
| ttatgtatat ttgtttaata ataacctatt tcaagtctga gttttgaaaa tttacatttc | 1408 |
| ccaagtattg cattattgag gtatttaaga agattatttt agagaaaaat atttctcatt | 1468 |
| tgatataatt tttctctgtt tcaactgtgtg aaaaaaagaa gatattttccc ataaatggga | 1528 |
| agtttgccca ttgtctcaag aaatgtgtat ttcagtgaca atttcgtggt ctttttagag | 1588 |
| gtatattcca aaatttcctt gtatttttag gttatgcaac taataaaaaac taccttacat | 1648 |
| taattaatta cagttttcta cacatggtaa tacaggatat gctactgatt taggaagttt | 1708 |
| ttaagttcat ggtattctct tgattccaac aaagtttgat tttctcttgt atttttctta | 1768 |
| cttactatgg gttacatttt ttatttttca aattggatga taatttcttg gaaacatttt | 1828 |

| | |
|--|------|
| ttatgtttta gtaaacagta ttttcttggt gtttcaaact gaagtttact gagagatcca | 1888 |
| tcaaattgaa caatctgttg taatttaaaa ttttggccac ttttttcaga ttttacatca | 1948 |
| ttcttgctga acttcaactt gaaattgttt tttttttttt ttcttttttg atgtgaaggt | 2008 |
| gaacattcct gatttttgtc tgatgtgaaa aagccttggt attttacatt ttgaaaattc | 2068 |
| aaagaagctt aatataaaaag tttgcattct actcaggaaa aagcatcttc ttgtatatgt | 2128 |
| cttaaagtga tttttgtcct catatacaga aagttcttaa ttgattttac agtctgtaat | 2188 |
| gcttgatggt ttaaaataat aacattttta ttttttttaa aagacaaact tcatattatc | 2248 |
| ctgtgttctt tcttgactgg taatattgtg tgggatttca caggtaaaag tcagtaggat | 2308 |
| ggaacatttt agtgtatttt tactccttaa agagctagaa tacatagttt tcaccttaaa | 2368 |
| agaaggggga aaatcataaa tacaatgaat caactgacca ttacgtagta gacaatttct | 2428 |
| gtaatgtccc cttctttcta ggctctgttg ctgtgtgaat ccattagatt tacagtatcg | 2488 |
| taatatacaa gttttcttta aagccctctc ctttagaatt taaaatattg taccattgaa | 2548 |
| gagtttggat gtgtaacttg tgatgcctta gaaaaatc ctaagcacia aataaacctt | 2608 |
| tctaaccact tcattaaaaa aaaaaaa | 2635 |

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 <212> DNA
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<220>
 <221> CDS
 <222> (36)..(3548)

<220>
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| ccggaattcc cgggtcgacg atttcgtggc cagac | 53 |
| atg gcg gaa gag gag gcg | |
| Met Ala Glu Glu Glu Ala | |
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| gcc aag ttg gag aag cac ttg atg ctt ctg cgg cag gag tat gtc aag | 101 |
| Ala Lys Leu Glu Lys His Leu Met Leu Leu Arg Gln Glu Tyr Val Lys | |
| 7 12 17 22 | |
| ctg caa aag aag ctg gcg gag aca gag aag cgc tgc gct ctc ttg gct | 149 |
| Leu Gln Lys Lys Leu Ala Glu Thr Glu Lys Arg Cys Ala Leu Leu Ala | |
| 23 28 33 38 | |

| | |
|---|-----|
| gcg cag gca aac aag gag agc agc agc gag tcc ttc atc agc cgt ctg | 197 |
| Ala Gln Ala Asn Lys Glu Ser Ser Ser Glu Ser Phe Ile Ser Arg Leu | |
| 39 44 49 54 | |
| ctg gcc atc gtg gca gac ctc tac gag cag gag cag tac agc gat ctg | 245 |
| Leu Ala Ile Val Ala Asp Leu Tyr Glu Gln Glu Gln Tyr Ser Asp Leu | |
| 55 60 65 70 | |
| aag ata aag gtt ggg gac agg cac atc agt gct cac aag ttt gtc ctg | 293 |
| Lys Ile Lys Val Gly Asp Arg His Ile Ser Ala His Lys Phe Val Leu | |
| 71 76 81 86 | |
| tca gcc cgc agt gac agc tgg agt ctg gct aac ttg tct tcc act aaa | 341 |
| Ser Ala Arg Ser Asp Ser Trp Ser Leu Ala Asn Leu Ser Ser Thr Lys | |
| 87 92 97 102 | |
| gag ttg gac ctg tca gat gct aat cct gag gtg acg atg aca atg ctt | 389 |
| Glu Leu Asp Leu Ser Asp Ala Asn Pro Glu Val Thr Met Thr Met Leu | |
| 103 108 113 118 | |
| cgc tgg atc tat aca gat gag ctg gag ttc aga gag gat gat gtg ttc | 437 |
| Arg Trp Ile Tyr Thr Asp Glu Leu Glu Phe Arg Glu Asp Asp Val Phe | |
| 119 124 129 134 | |
| ctg act gaa ctg atg aaa cta gca aat cgg ttt cag cta cag ctc ctc | 485 |
| Leu Thr Glu Leu Met Lys Leu Ala Asn Arg Phe Gln Leu Gln Leu Leu | |
| 135 140 145 150 | |
| agg gag aga tgt gag aag ggt gtt atg tct cta gtg aat gtc agg aac | 533 |
| Arg Glu Arg Cys Glu Lys Gly Val Met Ser Leu Val Asn Val Arg Asn | |
| 151 156 161 166 | |
| tgt att cgc ttc tac cag acg gca gag gag ctg aat gcc agc aca ctg | 581 |
| Cys Ile Arg Phe Tyr Gln Thr Ala Glu Glu Leu Asn Ala Ser Thr Leu | |
| 167 172 177 182 | |
| atg aac tac tgt gca gaa att att gca agt cat tgg gac gac ctg agg | 629 |
| Met Asn Tyr Cys Ala Glu Ile Ile Ala Ser His Trp Asp Asp Leu Arg | |
| 183 188 193 198 | |
| aag gag gat ttc agc agc atg agc cct cag ttg tta tac aaa atg atc | 677 |
| Lys Glu Asp Phe Ser Ser Met Ser Pro Gln Leu Leu Tyr Lys Met Ile | |
| 199 204 209 214 | |
| aaa tcc aag aca gag tac ccg cta cat aaa gcc atc aaa gtg gag aga | 725 |
| Lys Ser Lys Thr Glu Tyr Pro Leu His Lys Ala Ile Lys Val Glu Arg | |
| 215 220 225 230 | |
| gaa gac gtg gtc tcc ctg tat ctg att gaa atg gat tcc cag ctc cct | 773 |
| Glu Asp Val Val Ser Leu Tyr Leu Ile Glu Met Asp Ser Gln Leu Pro | |
| 231 236 241 246 | |
| ggg aag ctg aat gaa gcg gac cat aac ggg gac ctg gca tta gac cta | 821 |
| Gly Lys Leu Asn Glu Ala Asp His Asn Gly Asp Leu Ala Leu Asp Leu | |
| 247 252 257 262 | |

| | |
|---|------|
| gcc ctc tca cga cga ctg gag aat att gcc acc acg ctg gtt agt cac | 869 |
| Ala Leu Ser Arg Arg Leu Glu Asn Ile Ala Thr Thr Leu Val Ser His | |
| 263 268 273 278 | |
| aaa gct gat gtg gac atg gtg gac aag agt ggc tgg agc ttg tta cac | 917 |
| Lys Ala Asp Val Asp Met Val Asp Lys Ser Gly Trp Ser Leu Leu His | |
| 279 284 289 294 | |
| aaa gga atc caa aga gga gat ctc ttt gct gcc act ttc ctc att aag | 965 |
| Lys Gly Ile Gln Arg Gly Asp Leu Phe Ala Ala Thr Phe Leu Ile Lys | |
| 295 300 305 310 | |
| aat ggg gcc ttt gtc aac gct gct aca ctg ggt gcc cag gag aca cca | 1013 |
| Asn Gly Ala Phe Val Asn Ala Ala Thr Leu Gly Ala Gln Glu Thr Pro | |
| 311 316 321 326 | |
| ctg cac ctt gtg gcc ttg tac agt tca aag aaa cac tca gca gat gtg | 1061 |
| Leu His Leu Val Ala Leu Tyr Ser Ser Lys Lys His Ser Ala Asp Val | |
| 327 332 337 342 | |
| atg tct gag atg gcg cag att gca gag gcc ctt ctg cag gct ggt gcc | 1109 |
| Met Ser Glu Met Ala Gln Ile Ala Glu Ala Leu Leu Gln Ala Gly Ala | |
| 343 348 353 358 | |
| aac ccc aac atg cag gac agc aag ggg agg act cct tta cat gtg tcc | 1157 |
| Asn Pro Asn Met Gln Asp Ser Lys Gly Arg Thr Pro Leu His Val Ser | |
| 359 364 369 374 | |
| atc atg gcc ggg aat gaa tat gtg ttc agt cag ctg ctg cag tgc aaa | 1205 |
| Ile Met Ala Gly Asn Glu Tyr Val Phe Ser Gln Leu Leu Gln Cys Lys | |
| 375 380 385 390 | |
| caa cta gat tta gaa ctc aaa gac cac gag ggc agc acg gct ctg tgg | 1253 |
| Gln Leu Asp Leu Glu Leu Lys Asp His Glu Gly Ser Thr Ala Leu Trp | |
| 391 396 401 406 | |
| ctg gca gtg cag cat atc aca gtg tct tct gac cag tct gtg aac ccc | 1301 |
| Leu Ala Val Gln His Ile Thr Val Ser Ser Asp Gln Ser Val Asn Pro | |
| 407 412 417 422 | |
| ttc gaa gat gtc ccc gtg gta aat ggg act tca ttt gat gag aac agc | 1349 |
| Phe Glu Asp Val Pro Val Val Asn Gly Thr Ser Phe Asp Glu Asn Ser | |
| 423 428 433 438 | |
| ttt gca gcc aga ctc atc cag cgc ggc agc cac aca gac gca cct gac | 1397 |
| Phe Ala Ala Arg Leu Ile Gln Arg Gly Ser His Thr Asp Ala Pro Asp | |
| 439 444 449 454 | |
| acg gcg aca gga aac tgt tta cta cag cgg gca gct gga gca gga aac | 1445 |
| Thr Ala Thr Gly Asn Cys Leu Leu Gln Arg Ala Ala Gly Ala Gly Asn | |
| 455 460 465 470 | |
| gag gca gca gct ctt ttc ctg gca acc aac ggt gcc cat gtc aac cac | 1493 |
| Glu Ala Ala Ala Leu Phe Leu Ala Thr Asn Gly Ala His Val Asn His | |
| 471 476 481 486 | |
| aga aac aag tgg gga gaa acc ccg ttg cac aca gcg tgt cgg cat ggc | 1541 |

| | | | | |
|-------------------------|---|-----|-----|------|
| 711 | 716 | 721 | 726 | |
| cag acg ctc ctg cac | aga gcc att gat gaa aac aac gag ccc acc gcc | | | 2261 |
| Gln Thr Leu Leu His | Arg Ala Ile Asp Glu Asn Asn Glu Pro Thr Ala | | | |
| 727 | 732 | 737 | 742 | |
| tgc ttt ctt att cgc | agt ggc tgt gac gtg aac agt ccc aga caa cca | | | 2309 |
| Cys Phe Leu Ile Arg | Ser Gly Cys Asp Val Asn Ser Pro Arg Gln Pro | | | |
| 743 | 748 | 753 | 758 | |
| ggc gcc aat gga gaa gga | gag gaa gag gct aga gat ggg cag acc cct | | | 2357 |
| Gly Ala Asn Gly Glu Gly | Glu Glu Glu Ala Arg Asp Gly Gln Thr Pro | | | |
| 759 | 764 | 769 | 774 | |
| ttg cat ttg gca gcc tct | tgg ggg ctg gaa gag aca gta cag tgt ctt | | | 2405 |
| Leu His Leu Ala Ala Ser | Trp Gly Leu Glu Glu Thr Val Gln Cys Leu | | | |
| 775 | 780 | 785 | 790 | |
| ctg gag ttt ggt gcc aac | gtg aac gca cag gat gca gaa gga aga acc | | | 2453 |
| Leu Glu Phe Gly Ala Asn | Val Asn Ala Gln Asp Ala Glu Gly Arg Thr | | | |
| 791 | 796 | 801 | 806 | |
| ccc atc cac gtg gcc atc | agc agc caa cac ggt gtc atc att cag ctg | | | 2501 |
| Pro Ile His Val Ala Ile | Ser Ser Gln His Gly Val Ile Ile Gln Leu | | | |
| 807 | 812 | 817 | 822 | |
| ttg gtt tct cac ccc gat | atc cat ttg aat gta cgg gac aga caa ggg | | | 2549 |
| Leu Val Ser His Pro Asp | Ile His Leu Asn Val Arg Asp Arg Gln Gly | | | |
| 823 | 828 | 833 | 838 | |
| ctg acc ccg ttt gcc tgt | gcc atg act ttc aag aac aac aag tca gcc | | | 2597 |
| Leu Thr Pro Phe Ala Cys | Ala Met Thr Phe Lys Asn Asn Lys Ser Ala | | | |
| 839 | 844 | 849 | 854 | |
| gag gcc att ctc aaa cga | gag tca ggg gct gct gag cag gtg gat aac | | | 2645 |
| Glu Ala Ile Leu Lys Arg | Glu Ser Gly Ala Ala Glu Gln Val Asp Asn | | | |
| 855 | 860 | 865 | 870 | |
| aag ggc cgg aat ttc ctt | cat gtg gca gtt cag aac tct gat att gaa | | | 2693 |
| Lys Gly Arg Asn Phe Leu | His Val Ala Val Gln Asn Ser Asp Ile Glu | | | |
| 871 | 876 | 881 | 886 | |
| agt gtg ctg ttc ctg atc | agt gtc cac gct aat gtg aat tca aga gtc | | | 2741 |
| Ser Val Leu Phe Leu Ile | Ser Val His Ala Asn Val Asn Ser Arg Val | | | |
| 887 | 892 | 897 | 902 | |
| cag gat gcc tcc aag ttg | acc ccc ctg cac ctc gct gtc caa gca ggc | | | 2789 |
| Gln Asp Ala Ser Lys Leu | Thr Pro Leu His Leu Ala Val Gln Ala Gly | | | |
| 903 | 908 | 913 | 918 | |
| tca gaa att att gtc cgc | aat ttg ctt ctt gcg gga gcc aaa gtg aac | | | 2837 |
| Ser Glu Ile Ile Val Arg | Asn Leu Leu Leu Ala Gly Ala Lys Val Asn | | | |
| 919 | 924 | 929 | 934 | |
| gaa tta act aag cat cgc | cag act gcc ctc cat ctt gct gcc cag cag | | | 2885 |
| Glu Leu Thr Lys His Arg | Gln Thr Ala Leu His Leu Ala Ala Gln Gln | | | |
| 935 | 940 | 945 | 950 | |

| | |
|--|------|
| gac ctg ccc acc atc tgc tca gtc ctc cta gag aat ggc gtg gac ttt | 2933 |
| Asp Leu Pro Thr Ile Cys Ser Val Leu Leu Glu Asn Gly Val Asp Phe | |
| 951 956 961 966 | |
| gct gcc gtg gat gag aat gga aac aat gct ctt cat ctt gct gtc atg | 2981 |
| Ala Ala Val Asp Glu Asn Gly Asn Asn Ala Leu His Leu Ala Val Met | |
| 967 972 977 982 | |
| cac ggc cgg ctc aac aac atc cgg gtt ctc ctg aca gag tgc aca gtg | 3029 |
| His Gly Arg Leu Asn Asn Ile Arg Val Leu Leu Thr Glu Cys Thr Val | |
| 983 988 993 998 | |
| gac gcc gaa gcc ttt aat ctc aga ggc cag tca cca ^h ctg cac att ttg | 3077 |
| Asp Ala Glu Ala Phe Asn Leu Arg Gly Gln Ser Pro Leu His Ile Leu | |
| 999 1004 1009 1014 | |
| gga caa tat ggc aag gag aat gca gcg gcc atc ttt gat ctc ttc cta | 3125 |
| Gly Gln Tyr Gly Lys Glu Asn Ala Ala Ala Ile Phe Asp Leu Phe Leu | |
| 1015 1020 1025 1030 | |
| gaa tgc atg ccg ggg tat cct ctg gac aag ccg gat gca gac ggc agc | 3173 |
| Glu Cys Met Pro Gly Tyr Pro Leu Asp Lys Pro Asp Ala Asp Gly Ser | |
| 1031 1036 1041 1046 | |
| acg gtg ctg ctc ctg gca tac atg aaa ggg aac gcc aac ttg tgc cgc | 3221 |
| Thr Val Leu Leu Leu Ala Tyr Met Lys Gly Asn Ala Asn Leu Cys Arg | |
| 1047 1052 1057 1062 | |
| gcc atc gtc cgg tgc ggg gct cgc ctc ggg gtg aat aac aac cag gga | 3269 |
| Ala Ile Val Arg Ser Gly Ala Arg Leu Gly Val Asn Asn Asn Gln Gly | |
| 1063 1068 1073 1078 | |
| gtc aac atc ttc aac tac cag gtc gcc acc aag cag ctc ctg ttc cga | 3317 |
| Val Asn Ile Phe Asn Tyr Gln Val Ala Thr Lys Gln Leu Leu Phe Arg | |
| 1079 1084 1089 1094 | |
| ctg ctg gat atg ctg tcc aag gag cct ccg tgg tgt gac ggc tcc tac | 3365 |
| Leu Leu Asp Met Leu Ser Lys Glu Pro Pro Trp Cys Asp Gly Ser Tyr | |
| 1095 1100 1105 1110 | |
| tgc tat gag tgc act gcc agg ttc gga gtc acc act cgc aaa cac cac | 3413 |
| Cys Tyr Glu Cys Thr Ala Arg Phe Gly Val Thr Thr Arg Lys His His | |
| 1111 1116 1121 1126 | |
| tgt cgt cac tgc gga cgt ctt ctt tgc cat aaa tgc tgc acc aag gag | 3461 |
| Cys Arg His Cys Gly Arg Leu Leu Cys His Lys Cys Ser Thr Lys Glu | |
| 1127 1132 1137 1142 | |
| att cct att ata aag ttt gat ctg aac aag cct gtg cgg gtt tgc aac | 3509 |
| Ile Pro Ile Ile Lys Phe Asp Leu Asn Lys Pro Val Arg Val Cys Asn | |
| 1143 1148 1153 1158 | |
| att tgt ttt gat gta ctg act ctg ggt ggg gtt tct tag tgagcccccc | 3558 |
| Ile Cys Phe Asp Val Leu Thr Leu Gly Gly Val Ser * | |
| 1159 1164 1169 | |

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ggaggggtcca ggccacgtcc ttggtcacct cccagcagc tgctctgctc accagcctga 3618
ccccacccag agcaggagct ggcgggtgtc ttctgcggc aatagactgg aacgattaag 3678
gaccatgggtg tgatagatcc catttcaa at gattccatat gattgtcagt gtgtgctgtc 3738
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cg 4100

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<212> DNA
<213> Homo sapiens

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<221> CDS
<222> (36)..(653)

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gcc aag ttg gag aag cac ttg atg ctt ctg cgg cag gag tat gtc aag 101
Ala Lys Leu Glu Lys His Leu Met Leu Leu Arg Gln Glu Tyr Val Lys
  7          12          17          22

ctg caa aag aag ctg gcg gag aca gag aag cgc tgc gct ctc ttg gct 149
Leu Gln Lys Lys Leu Ala Glu Thr Glu Lys Arg Cys Ala Leu Leu Ala
  23          28          33          38

gcg cag gca aac aag gag agc agc agc gag tcc ttc atc agc cgt ctg 197
Ala Gln Ala Asn Lys Glu Ser Ser Ser Glu Ser Phe Ile Ser Arg Leu
  39          44          49          54

ctg gcc atc gtg gca gac ctc tac gag cag gag cag tac agc gat ctg 245
Leu Ala Ile Val Ala Asp Leu Tyr Glu Gln Glu Gln Tyr Ser Asp Leu
  55          60          65          70

aag ata aag gtt ggg gac agg cac atc agt gct cac aag ttt gtc ctg 293
Lys Ile Lys Val Gly Asp Arg His Ile Ser Ala His Lys Phe Val Leu
  71          76          81          86

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| | |
|---|-----|
| tca gcc cgc agt gac agc tgg agt ctg gct aac ttg tct tcc act aaa | 341 |
| Ser Ala Arg Ser Asp Ser Trp Ser Leu Ala Asn Leu Ser Ser Thr Lys | |
| 87 92 97 102 | |
| | |
| gag ttg gac ctg tca gat gct aat cct gag gtg acg atg aca atg ctt | 389 |
| Glu Leu Asp Leu Ser Asp Ala Asn Pro Glu Val Thr Met Thr Met Leu | |
| 103 108 113 118 | |
| | |
| cgc tgg atc tat aca gat gag ctg gag ttc aga gag gat gat gtg ttc | 437 |
| Arg Trp Ile Tyr Thr Asp Glu Leu Glu Phe Arg Glu Asp Asp Val Phe | |
| 119 124 129 134 | |
| | |
| ctg act gaa ctg atg aaa cta gca aat cgg ttt cag cta cag ctc ctc | 485 |
| Leu Thr Glu Leu Met Lys Leu Ala Asn Arg Phe Gln Leu Gln Leu Leu | |
| 135 140 145 150 | |
| | |
| agg gag aga tgt gag aag ggt gtt atg tct cta gtg aat gtc agg aac | 533 |
| Arg Glu Arg Cys Glu Lys Gly Val Met Ser Leu Val Asn Val Arg Asn | |
| 151 156 161 166 | |
| | |
| tgt att cgc ttc tac cag acg gca gag gag ctg aat gcc agc aca ctg | 581 |
| Cys Ile Arg Phe Tyr Gln Thr Ala Glu Glu Leu Asn Ala Ser Thr Leu | |
| 167 172 177 182 | |
| | |
| atg aac tac tgt gca gaa att att gca agt cat tgg gtg agt gag gtt | 629 |
| Met Asn Tyr Cys Ala Glu Ile Ile Ala Ser His Trp Val Ser Glu Val | |
| 183 188 193 198 | |
| | |
| gag ggt gtc aac aaa gca ctc tag ctggcagtca ggagaccgcc gctggggacg | 683 |
| Glu Gly Val Asn Lys Ala Leu * | |
| 199 204 | |
| | |
| tagttccatg gaaagtgacc tctctggcac ctggttttct cttgttacac aattgaagaa | 743 |
| | |
| taaatagttt gaaaagatga aaaaaaaaaa aaaa | 777 |

<210> 1073
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 <212> DNA
 <213> Homo sapiens

<220>
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| <400> 1073 | |
| agctggacga ggacaggcgg gtgcggccgc ccgtaagatg ctctgacctt tgaccctgc | 60 |
| | |
| cgttcagctc tagggcccggt gcaggcacac c atg aac acc tcc cca ggc acg | 112 |
| Met Asn Thr Ser Pro Gly Thr | |
| 1 / 5 | |
| | |
| gtg ggc agt gac ccg gtc atc ctg gcc act gca ggc tac gac cac acc | 160 |
| Val Gly Ser Asp Pro Val Ile Leu Ala Thr Ala Gly Tyr Asp His Thr | |

| 8 | 13 | 18 | 23 | |
|---|-----|-----|-----|-----|
| gtg cgc ttc tgg cag gcc cac agc ggc atc tgc acc cgg acg gtg cag | | | | 208 |
| Val Arg Phe Trp Gln Ala His Ser Gly Ile Cys Thr Arg Thr Val Gln | | | | |
| 24 | 29 | 34 | 39 | |
| cac cag gac tcc cag gtg aat gcc ttg gag gtc aca ccg gac cgc agc | | | | 256 |
| His Gln Asp Ser Gln Val Asn Ala Leu Glu Val Thr Pro Asp Arg Ser | | | | |
| 40 | 45 | 50 | 55 | |
| atg att gct gct gca gtt cag cct gtg tcc cta ggt tac cag cac atc | | | | 304 |
| Met Ile Ala Ala Ala Val Gln Pro Val Ser Leu Gly Tyr Gln His Ile | | | | |
| 56 | 61 | 66 | 71 | |
| cgc atg tat gat ctc aac tcc aat aac cct aac ccc atc atc agc tac | | | | 352 |
| Arg Met Tyr Asp Leu Asn Ser Asn Asn Pro Asn Pro Ile Ile Ser Tyr | | | | |
| 72 | 77 | 82 | 87 | |
| gac ggc gtc aac aag aac atc gcg tct gtg ggc ttc cac gaa gac ggc | | | | 400 |
| Asp Gly Val Asn Lys Asn Ile Ala Ser Val Gly Phe His Glu Asp Gly | | | | |
| 88 | 93 | 98 | 103 | |
| cgc tgg atg tac acg ggc ggc gag gac tgc aca gcc agg atc tgg gac | | | | 448 |
| Arg Trp Met Tyr Thr Gly Gly Glu Asp Cys Thr Ala Arg Ile Trp Asp | | | | |
| 104 | 109 | 114 | 119 | |
| ctc agg tcc cgg aac ctg cag tgc cag cgg atc ttc cag gtg aac gca | | | | 496 |
| Leu Arg Ser Arg Asn Leu Gln Cys Gln Arg Ile Phe Gln Val Asn Ala | | | | |
| 120 | 125 | 130 | 135 | |
| ccc att aac tgc gtg tgc ctg cac ccc aac cag gca gag ctc atc gtg | | | | 544 |
| Pro Ile Asn Cys Val Cys Leu His Pro Asn Gln Ala Glu Leu Ile Val | | | | |
| 136 | 141 | 146 | 151 | |
| ggt gac cag agc ggg gct atc cac atc tgg gac ttg aaa aca gac cac | | | | 592 |
| Gly Asp Gln Ser Gly Ala Ile His Ile Trp Asp Leu Lys Thr Asp His | | | | |
| 152 | 157 | 162 | 167 | |
| aac gag cag ctg atc cct gag ccc gag gtc tcc atc acg tcc gcc cac | | | | 640 |
| Asn Glu Gln Leu Ile Pro Glu Pro Glu Val Ser Ile Thr Ser Ala His | | | | |
| 168 | 173 | 178 | 183 | |
| atc gat ccc gac gcc agc tac atg gca gct gtc aat agc acc gga aac | | | | 688 |
| Ile Asp Pro Asp Ala Ser Tyr Met Ala Ala Val Asn Ser Thr Gly Asn | | | | |
| 184 | 189 | 194 | 199 | |
| tgc tat gtc tgg aat ctg acg ggg ggc att ggt gac gag gtg acc cag | | | | 736 |
| Cys Tyr Val Trp Asn Leu Thr Gly Gly Ile Gly Asp Glu Val Thr Gln | | | | |
| 200 | 205 | 210 | 215 | |
| ctc atc ccc aag act aag atc cct gcc cac acg cgc tac gcc ctg cag | | | | 784 |
| Leu Ile Pro Lys Thr Lys Ile Pro Ala His Thr Arg Tyr Ala Leu Gln | | | | |
| 216 | 221 | 226 | 231 | |
| tgt cgc ttc agc ccc gac tcc acg ctc ctc gcc acc tgc tcg gct gat | | | | 832 |
| Cys Arg Phe Ser Pro Asp Ser Thr Leu Leu Ala Thr Cys Ser Ala Asp | | | | |
| 232 | 237 | 242 | 247 | |

| | |
|---|------|
| cag acg tgc aag atc tgg agg acg tcc aac ttc tcc ctg atg acg gag | 880 |
| Gln Thr Cys Lys Ile Trp Arg Thr Ser Asn Phe Ser Leu Met Thr Glu | |
| 248 253 258 263 | |
| ctg agc atc aag agc ggc aac ccc ggg gag tcc tcc cgc ggc tgg atg | 928 |
| Leu Ser Ile Lys Ser Gly Asn Pro Gly Glu Ser Ser Arg Gly Trp Met | |
| 264 269 274 279 | |
| tgg ggc tgc gcc ttc tcg ggg gac tcc cag tac atc gtc act gct tcc | 976 |
| Trp Gly Cys Ala Phe Ser Gly Asp Ser Gln Tyr Ile Val Thr Ala Ser | |
| 280 285 290 295 | |
| tcg gac aac ctg gcc cgg ctc tgg tgt gtg gag act gga gag atc aag | 1024 |
| Ser Asp Asn Leu Ala Arg Leu Trp Cys Val Glu Thr Gly Glu Ile Lys | |
| 296 301 306 311 | |
| aga gag tat ggc ggc cac cag aag gct gtt gtc tgc ctg gcc ttc aat | 1072 |
| Arg Glu Tyr Gly Gly His Gln Lys Ala Val Val Cys Leu Ala Phe Asn | |
| 312 317 322 327 | |
| gac agt gtg ctg ggc tag cctgtg acccctcggg actgcctggt gcaggtggtg | 1126 |
| Asp Ser Val Leu Gly * | |
| 328 333 | |
| gcagctggag ggacccatgc agcaccacagg tcagagcaga ccctccccctg ccggcctgcg | 1186 |
| ccagctggac ctgatggccc cctgtggcgc cttgacctgc tgggccaggc tgccctggga | 1246 |
| ctctcagccc ccagttgctt atccagatgt gacagagctc gacccaagcc aggctgcaca | 1306 |
| ctcctggact gggctagcct gcaactgcctg ggaaagtccg ccgagggccc aaagctgctg | 1366 |
| aggggtctga ggctggtgcc ccccccaag ctagtgtgtt ctctgcccct ccctgcccgc | 1426 |
| gtttcagggc ctcggtccat agagaacacc accaccatgg ccaggtggaa gggtttatta | 1486 |
| gtccctgccca gcagctgtcc tccctggtgc aggtggcctg gccagcccac tggattgggg | 1546 |
| acgggccagg ctgggccagg tcgggggctc agtctgggag gtaataaaag cagaccgaca | 1606 |
| cgcagatggt gctcgggaaa aaaaaaaaaa | 1635 |

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<220>
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 <222> (128) .. (1210)

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| ccggaattcc cgggtcgacc cagcgcgtccg ctctccgtcc tggacacggc ggagtgcgga | 60 |

| | |
|---|-----|
| cgcgcccgta agatgctctg acctttgacc cctgccgttc agctctaggg cccgtgcagg | 120 |
| ccacacc atg aac acc tcc cca ggc acg gtg ggc agt gac ccg gtc atc | 169 |
| Met Asn Thr Ser Pro Gly Thr Val Gly Ser Asp Pro Val Ile | |
| 1 5 10 | |
| ctg gcc act gca ggc tac gac cac acc gtg cgc ttc tgg cag gcc cac | 217 |
| Leu Ala Thr Ala Gly Tyr Asp His Thr Val Arg Phe Trp Gln Ala His | |
| 15 20 25 30 | |
| agc ggc atc tgc acc cgg acg gtg cag cac cag gac tcc cag gtg aat | 265 |
| Ser Gly Ile Cys Thr Arg Thr Val Gln His Gln Asp Ser Gln Val Asn | |
| 31 36 41 46 | |
| gcc ttg gag gtc aca ccg gac cgc agc atg att gct gct gca ggt tac | 313 |
| Ala Leu Glu Val Thr Pro Asp Arg Ser Met Ile Ala Ala Ala Gly Tyr | |
| 47 52 57 62 | |
| cag cac atc cgc atg tat gat ctc aac tcc aat aac cct aac ccc atc | 361 |
| Gln His Ile Arg Met Tyr Asp Leu Asn Ser Asn Asn Pro Asn Pro Ile | |
| 63 68 73 78 | |
| atc agc tac gac ggc gtc aac aag aac atc gcg tct gtg ggc ttc cac | 409 |
| Ile Ser Tyr Asp Gly Val Asn Lys Asn Ile Ala Ser Val Gly Phe His | |
| 79 84 89 94 | |
| gaa gac ggc cgc tgg atg tac acg ggc ggc gag gac tgc aca gcc agg | 457 |
| Glu Asp Gly Arg Trp Met Tyr Thr Gly Gly Glu Asp Cys Thr Ala Arg | |
| 95 100 105 110 | |
| atc tgg gac ctc agg tcc cgg aac ctg cag tgc cag cgg atc ttc cag | 505 |
| Ile Trp Asp Leu Arg Ser Arg Asn Leu Gln Cys Gln Arg Ile Phe Gln | |
| 111 116 121 126 | |
| gtg aac gca ccc att aac tgc gtg tgc ctg cac ccg aac cag gca gag | 553 |
| Val Asn Ala Pro Ile Asn Cys Val Cys Leu His Pro Asn Gln Ala Glu | |
| 127 132 137 142 | |
| ctc atc gtg ggt gac cag agc ggg gct atc cac atc tgg gac ttg aaa | 601 |
| Leu Ile Val Gly Asp Gln Ser Gly Ala Ile His Ile Trp Asp Leu Lys | |
| 143 148 153 158 | |
| aca gac cac aac gag cag ctg atc cct gag ccc gag gtc tcc atc acg | 649 |
| Thr Asp His Asn Glu Gln Leu Ile Pro Glu Pro Glu Val Ser Ile Thr | |
| 159 164 169 174 | |
| tcc gcc cac atc gat ccc gac gcc agc tac atg gca gct gtc aat agc | 697 |
| Ser Ala His Ile Asp Pro Asp Ala Ser Tyr Met Ala Ala Val Asn Ser | |
| 175 180 185 190 | |
| acc ctg gtg ccc ttc tcc tgt cta ctt ccg ttg gcc atc ggc atc ctc | 745 |
| Thr Leu Val Pro Phe Ser Cys Leu Leu Pro Leu Ala Ile Gly Ile Leu | |
| 191 196 201 206 | |
| cag gaa gga gaa ttt gag tcc ttg gcc agg cgt ggc ctc ctg ttc ttg | 793 |
| Gln Glu Gly Glu Phe Glu Ser Leu Ala Arg Arg Gly Leu Leu Phe Leu | |

| 207 | 212 | 217 | 222 | |
|--|---|---|-------------------|------|
| gct tgc cag gga aac Ala Cys Gln Gly Asn 223 | tgc tat gtc tgg aat Cys Tyr Val Trp Asn 228 | ctg acg ggg ggc att Leu Thr Gly Gly Ile 233 | ggt Gly 238 | 841 |
| gac gag gtg acc cag Asp Glu Val Thr Gln 239 | ctc atc ccc aag act Leu Ile Pro Lys Thr 244 | aag atc cct gcc cac Lys Ile Pro Ala His 249 | acg Thr 254 | 889 |
| cgc tac gcc ctg cag Arg Tyr Ala Leu Gln 255 | tgt cgc ttc agc ccc Cys Arg Phe Ser Pro 260 | gac tcc acg ctc ctc Asp Ser Thr Leu Leu 265 | gcc Ala 270 | 937 |
| acc tgc tcg gct gat Thr Cys Ser Ala Asp 271 | cag acg tgc aag atc Gln Thr Cys Lys Ile 276 | tgg agg acg tcc aac ttc Trp Arg Thr Ser Asn Phe 281 | | 985 |
| tcc ctg atg acg gag Ser Leu Met Thr Glu 287 | ctg agc atc aag agc Leu Ser Ile Lys Ser 292 | ggc aac ccc ggg gag Gly Asn Pro Gly Glu 297 | tcc Ser 302 | 1033 |
| tcc cgc ggc tgg atg Ser Arg Gly Trp Met 303 | tgg ggc tgc gcc ttc Trp Gly Cys Ala Phe 308 | tcg ggg gac tcc cag Ser Gly Asp Ser Gln 313 | tac Tyr 318 | 1081 |
| atc gtc act gct tcc Ile Val Thr Ala Ser 319 | tcg gac aac ctg gcc Ser Asp Asn Leu Ala 324 | cgg ctc tgg tgt gtg Arg Leu Trp Cys Val 329 | gag Glu 334 | 1129 |
| act gga gag atc aag Thr Gly Glu Ile Lys 335 | aga gag tat ggc ggc Arg Glu Tyr Gly Gly 340 | cac cag aag gct gtt gtc His Gln Lys Ala Val 345 | | 1177 |
| tgc ctg gcc ttc aat Cys Leu Ala Phe Asn 351 | gac agt gtg ctg ggc Asp Ser Val Leu Gly 356 | tag cctgtgac ccctcgggac * | | 1228 |
| tgccctggtgc aggtggtggc agctggagggg acccatgcag caccaggtc agagcagacc | | | | 1288 |
| ctccctgccc ggctgcgcc agctggacct gatggcccc tgtggcgccct tgacctgctg | | | | 1348 |
| ggccaggctg ccctgggact ctcagcccc agttgcttat ccagatgtga cagagctcga | | | | 1408 |
| cccaagccag gctgcacact cctggactgg gctagcctgc actgcctggg aaagtcggcc | | | | 1468 |
| gagggcccaa agctgctgag gggtctgagg ctggtgccca ccccaaagct agtgtgttct | | | | 1528 |
| ctgcccctcc ctgcccgcgt ttcagggcct cgggccatag agaacaccac caccatggcc | | | | 1588 |
| aggtggaagg gtttattagt ccctgccagc agctgtcctc cctggtgcag gtggcctggc | | | | 1648 |
| cagccactg gattggggac gggccaggct gggccaggtc gggggctcag tctgggaggt | | | | 1708 |
| aataaaagca gaccgacacg cagatgttgc tcgggaaaaa aaaaaaa | | | | 1755 |

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 <213> Homo sapiens

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<400> 1075

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      Met His Ser Thr Gln Asp Lys Ser Leua His Leu Glu Gly
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gat ccc aat cct tct gca gcc cca aca tcc acc tgc gca cct agg aaa      98
Asp Pro Asn Pro Ser Ala Ala Pro Thr Ser Thr Cys Ala Pro Arg Lys
      14              19              24              29

atg ccc aaa agg att tca ata tcc aaa caa ctg gct tca gtg aaa gct      146
Met Pro Lys Arg Ile Ser Ile Ser Lys Gln Leu Ala Ser Val Lys Ala
      30              35              40              45

ctg agg aag tgc tca gat ctg gaa aaa gct att gcc acc act gct ctg      194
Leu Arg Lys Cys Ser Asp Leu Glu Lys Ala Ile Ala Thr Thr Ala Leu
      46              51              56              61

att ttc aga aat tct tct gac tct gat ggt aaa ctt gaa aaa gct att      242
Ile Phe Arg Asn Ser Ser Asp Ser Asp Gly Lys Leu Glu Lys Ala Ile
      62              67              72              77

gcc aaa gat ctg ctg caa acc caa ttt agg aat ttc gca gag gga caa      290
Ala Lys Asp Leu Leu Gln Thr Gln Phe Arg Asn Phe Ala Glu Gly Gln
      78              83              88              93

gaa acc aag cca aaa tac aga gag atc ctt tct gaa ctt gat gag cac      338
Glu Thr Lys Pro Lys Tyr Arg Glu Ile Leu Ser Glu Leu Asp Glu His
      94              99              104              109

aca gaa aat aag cta gat ttt gaa gac ttc atg atc ttg ctc tta agc      386
Thr Glu Asn Lys Leu Asp Phe Glu Asp Phe Met Ile Leu Leu Leu Ser
      110              115              120              125

atc act gtc atg tca gat ctg cta caa aat ata cgg aat gta aaa att      434
Ile Thr Val Met Ser Asp Leu Leu Gln Asn Ile Arg Asn Val Lys Ile
      126              131              136              141

atg aaa tga acagttc taaatatgct gtataaaata atggcaaaag acagtgttat      490
Met Lys *
      142

taaaatgttt ccatcttatt tgtgattaat tgaatatatc tatcaacgaa atcgtcgaca      550

gcgaagtcga cccgggaatt ccgaaca      577

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 caacattgat ttgttttaga aagctctttt attttcagtt ctggctgtgt tcaacatctt 180
 agcttacgtt tttcatgttg taatgatctg ccgtacggac gatcacctct aagttagaga 240
 gttctgtaat ttggcttgga ttaaagatgc ttggttagtg aaagctgctg ctttttttat 300
 agtcaaagga ctggttctga gagccttggt gcag atg gct gag gtc acc gtc 352
 Met Ala Glu Val Thr Val
 , 1
 cca agg gtg tat gtc gtg ttt ggc atc cat tgc atc atg gcg aag gca 400
 Pro Arg Val Tyr Val Val Phe Gly Ile His Cys Ile Met Ala Lys Ala
 7 12 17 22
 tct tca gat gtg cag gtt tca ggc ttt cat cgg aaa atc cag cac gtt 448
 Ser Ser Asp Val Gln Val Ser Gly Phe His Arg Lys Ile Gln His Val
 23 28 33 38
 aaa aat gaa ctt tgc cac atg ttg agc ttg gag gag gtg gcc cca gtg 496
 Lys Asn Glu Leu Cys His Met Leu Ser Leu Glu Glu Val Ala Pro Val
 39 44 49 54
 ctg cag cag aca tta ctt cag gac aac ctc ttg ggc agg gta cat ttt 544
 Leu Gln Gln Thr Leu Leu Gln Asp Asn Leu Leu Gly Arg Val His Phe
 55 60 65 70
 gac caa ttt aaa gaa gca tta ata ctc atc ttg tcc aga act ctg tca 592
 Asp Gln Phe Lys Glu Ala Leu Ile Leu Ile Leu Ser Arg Thr Leu Ser
 71 76 81 86
 gat gaa gaa cac ttc caa gaa cca gac tgc tca cta gaa gct cag ccc 640
 Asp Glu Glu His Phe Gln Glu Pro Asp Cys Ser Leu Glu Ala Gln Pro
 87 92 97 102
 aga tat gtt aga ggt gag aag cct tac gga cga agg tcc ttg ccc gag 688
 Arg Tyr Val Arg Gly Glu Lys Pro Tyr Gly Arg Arg Ser Leu Pro Glu
 103 108 113 118
 ttc caa gag tcc gtg gag gag ttt cct gag gtg acg gtg att gag ccc 736
 Phe Gln Glu Ser Val Glu Glu Phe Pro Glu Val Thr Val Ile Glu Pro
 119 124 129 134

| | |
|---|------|
| ctg gat gaa gaa gcg cgg cct tca cac atc cca gcc ggt gac tgc agt | 784 |
| Leu Asp Glu Glu Ala Arg Pro Ser His Ile Pro Ala Gly Asp Cys Ser | |
| 135 140 145 150 | |
| gag cac tgg aag acg caa cgc agt gag gag tat gaa gcg gaa ggc cag | 832 |
| Glu His Trp Lys Thr Gln Arg Ser Glu Glu Tyr Glu Ala Glu Gly Gln | |
| 151 156 161 166 | |
| tta agg ttt tgg aac cca gat gac ttg aat gct tca cag agt gga tct | 880 |
| Leu Arg Phe Trp Asn Pro Asp Asp Leu Asn Ala Ser Gln Ser Gly Ser | |
| 167 172 177 182 | |
| tcc cct ccc caa gac tgg ata gaa gag aaa ctg caa caa gtt tgt gaa | 928 |
| Ser Pro Pro Gln Asp Trp Ile Glu Glu Lys Leu Gln Gln Val Cys Glu | |
| 183 188 193 198 | |
| gat ttg ggg atc acc cct gat ggt cac ctg aac cgg aag aag ctg gtt | 976 |
| Asp Leu Gly Ile Thr Pro Asp Gly His Leu Asn Arg Lys Lys Leu Val | |
| 199 204 209 214 | |
| tcc atc tgt gag cag tat ggt ttg cag aat gtg gat gga gag atg ctc | 1024 |
| Ser Ile Cys Glu Gln Tyr Gly Leu Gln Asn Val Asp Gly Glu Met Leu | |
| 215 220 225 230 | |
| gag gaa gta ttc cat aat ctt gat cct gac ggt aca atg agt gta gaa | 1072 |
| Glu Glu Val Phe His Asn Leu Asp Pro Asp Gly Thr Met Ser Val Glu | |
| 231 236 241 246 | |
| gat ttt ttc tat ggt ttg ttt aaa aat gga aaa tct ctt aca cca tca | 1120 |
| Asp Phe Phe Tyr Gly Leu Phe Lys Asn Gly Lys Ser Leu Thr Pro Ser | |
| 247 252 257 262 | |
| gca tct act cca tat aga caa cta aaa agg cac ctt tcc atg cag tct | 1168 |
| Ala Ser Thr Pro Tyr Arg Gln Leu Lys Arg His Leu Ser Met Gln Ser | |
| 263 268 273 278 | |
| ttc gat gag agt gga cga cgt acc aca acc tca tca gca acg aca agt | 1216 |
| Phe Asp Glu Ser Gly Arg Arg Thr Thr Thr Ser Ser Ala Thr Thr Ser | |
| 279 284 289 294 | |
| acc att ggc ttt cgg gtc ttc tcc tgc ctg gat gat ggg atg ggc cat | 1264 |
| Thr Ile Gly Phe Arg Val Phe Ser Cys Leu Asp Asp Gly Met Gly His | |
| 295 300 305 310 | |
| gca tct gtg gag agg ata ctc gac acc tgg cag gaa gag ggc att gag | 1312 |
| Ala Ser Val Glu Arg Ile Leu Asp Thr Trp Gln Glu Glu Gly Ile Glu | |
| 311 316 321 326 | |
| aac agc cag gag atc ctg aag gcc ttg gat ttc agc ctc gat gga aac | 1360 |
| Asn Ser Gln Glu Ile Leu Lys Ala Leu Asp Phe Ser Leu Asp Gly Asn | |
| 327 332 337 342 | |
| atc aat ttg aca gaa tta aca ctg gcc ctt gaa aat gaa ctt ttg gtt | 1408 |
| Ile Asn Leu Thr Glu Leu Thr Leu Ala Leu Glu Asn Glu Leu Leu Val | |
| 343 348 353 358 | |

| | |
|---|------|
| acc aag aac agc att cac cag gcg gct ctg gcc agc ttt aag gct gaa Thr Lys Asn Ser Ile His Gln Ala Ala Leu Ala Ser Phe Lys Ala Glu 359 364 369 374 | 1456 |
| atc cgg cat ttg ttg gaa cga gtt gat cag gtg gtc aga gaa aaa gag Ile Arg His Leu Leu Glu Arg Val Asp Gln Val Val Arg Glu Lys Glu 375 380 385 390 | 1504 |
| aag cta cgg tca gat ctg gac aag gcc gag aag ctc aag tct tta atg Lys Leu Arg Ser Asp Leu Asp Lys Ala Glu Lys Leu Lys Ser Leu Met 391 396 401 406 | 1552 |
| gcc tcg gag gtg gat gat cac cat gcg gcc ata gag cgg cgg aat gag Ala Ser Glu Val Asp Asp His His Ala Ala Ile Glu Arg Arg Asn Glu 407 412 417 422 | 1600 |
| tac aac ctc agg aaa ctg gat gaa gag tac aag gag cga ata gca gcc Tyr Asn Leu Arg Lys Leu Asp Glu Glu Tyr Lys Glu Arg Ile Ala Ala 423 428 433 438 | 1648 |
| tta aaa aat gaa ctc cga aaa gag aga gag cag atc ctg cag cag gca Leu Lys Asn Glu Leu Arg Lys Glu Arg Glu Gln Ile Leu Gln Gln Ala 439 444 449 454 | 1696 |
| ggc aag cag cgt tta gaa ctt gaa cag gaa att gaa aag gca aaa aca Gly Lys Gln Arg Leu Glu Leu Glu Gln Glu Ile Glu Lys Ala Lys Thr 455 460 465 470 | 1744 |
| gaa gag aac tat atc cgg gac cgc ctt gcc ctc tct tta aag gaa aac Glu Glu Asn Tyr Ile Arg Asp Arg Leu Ala Leu Ser Leu Lys Glu Asn 471 476 481 486 | 1792 |
| agt cgt ctg gaa aat gag ctt cta gaa aat gca gag aag ttg gca gaa Ser Arg Leu Glu Asn Glu Leu Leu Glu Asn Ala Glu Lys Leu Ala Glu 487 492 497 502 | 1840 |
| tat gag aat ctg aca aac aaa ctt cag aga aat ttg gaa aat gtg tta Tyr Glu Asn Leu Thr Asn Lys Leu Gln Arg Asn Leu Glu Asn Val Leu 503 508 513 518 | 1888 |
| gca gaa aag ttt ggt gac ctc gat cct agc agt gct gag ttc ttc ctg Ala Glu Lys Phe Gly Asp Leu Asp Pro Ser Ser Ala Glu Phe Phe Leu 519 524 529 534 | 1936 |
| caa gaa gag aga ctg aca cag atg aga aat gaa tat gag cgg cag tgc Gln Glu Glu Arg Leu Thr Gln Met Arg Asn Glu Tyr Glu Arg Gln Cys 535 540 545 550 | 1984 |
| agg gta cta caa gac caa gta gat gaa ctc cag tct gag ctg gaa gaa Arg Val Leu Gln Asp Gln Val Asp Glu Leu Gln Ser Glu Leu Glu Glu 551 556 561 566 | 2032 |
| tat cgt gca caa ggc aga gtg ctc agg ctt ccg ttg aag aac tca ccg Tyr Arg Ala Gln Gly Arg Val Leu Arg Leu Pro Leu Lys Asn Ser Pro 567 572 577 582 | 2080 |
| tca gaa gaa gtt gag gct aac agc ggt ggc att gaa ccc gaa cac ggg | 2128 |

| | | | | |
|---|------|------|------|------|
| 807 | 812 | 817 | 822 | |
| cag ttt cag tct gat tgt cag aaa gtc act gag agg tgt gaa agc gct | | | | 2848 |
| Gln Phe Gln Ser Asp Cys Gln Lys Val Thr Glu Arg Cys Glu Ser Ala | | | | |
| 823 | 828 | 833 | 838 | |
| ctg caa agc ctg gag ggg cgc tac cgc caa gag ctg aag gac ctc cag | | | | 2896 |
| Leu Gln Ser Leu Glu Gly Arg Tyr Arg Gln Glu Leu Lys Asp Leu Gln | | | | |
| 839 | 844 | 849 | 854 | |
| gaa cag cag cgt gag gag aaa tcc cag tgg gaa ttt gag aag gac gag | | | | 2944 |
| Glu Gln Gln Arg Glu Glu Lys Ser Gln Trp Glu Phe Glu Lys Asp Glu | | | | |
| 855 | 860 | 865 | 870 | |
| ctc acc cag gag tgt gcg gaa gca cag gag ctg ctg aaa gag act ctt | | | | 2992 |
| Leu Thr Gln Glu Cys Ala Glu Ala Gln Glu Leu Leu Lys Glu Thr Leu | | | | |
| 871 | 876 | 881 | 886 | |
| aag aga gag aaa aca act tct ctg gtc ctg acc cag gag aga gag atg | | | | 3040 |
| Lys Arg Glu Lys Thr Thr Ser Leu Val Leu Thr Gln Glu Arg Glu Met | | | | |
| 887 | 892 | 897 | 902 | |
| ctg gag aaa aca tac aaa gac cat ttg aac agc atg gtc gtc gag aga | | | | 3088 |
| Leu Glu Lys Thr Tyr Lys Asp His Leu Asn Ser Met Val Val Glu Arg | | | | |
| 903 | 908 | 913 | 918 | |
| cag cag cta ctc caa gac ctg gaa gac cta aga aat gta tct gaa acc | | | | 3136 |
| Gln Gln Leu Leu Gln Asp Leu Glu Asp Leu Arg Asn Val Ser Glu Thr | | | | |
| 919 | 924 | 929 | 934 | |
| cag caa agc ctg ctg tct gac cag ata ctt gag ctg aag agc agt cac | | | | 3184 |
| Gln Gln Ser Leu Leu Ser Asp Gln Ile Leu Glu Leu Lys Ser Ser His | | | | |
| 935 | 940 | 945 | 950 | |
| aaa agg gaa ctg agg gag cgt gag gag gtc ctg tgc cag cag ggg gtc | | | | 3232 |
| Lys Arg Glu Leu Arg Glu Arg Glu Glu Val Leu Cys Gln Gln Gly Val | | | | |
| 951 | 956 | 961 | 966 | |
| tcg gag cag ctg gcc agc cag cgg ctg gaa aga cta gaa atg gaa cat | | | | 3280 |
| Ser Glu Gln Leu Ala Ser Gln Arg Leu Glu Arg Leu Glu Met Glu His | | | | |
| 967 | 972 | 977 | 982 | |
| gac cag gaa agg cag gaa atg atg tcc aag ctt cta gcc atg gag aac | | | | 3328 |
| Asp Gln Glu Arg Gln Glu Met Met Ser Lys Leu Leu Ala Met Glu Asn | | | | |
| 983 | 988 | 993 | 998 | |
| att cac aaa gcg acc tgt gag aca gca gat cga gaa aga gcc gag atg | | | | 3376 |
| Ile His Lys Ala Thr Cys Glu Thr Ala Asp Arg Glu Arg Ala Glu Met | | | | |
| 999 | 1004 | 1009 | 1014 | |
| agc aca gaa atc tcc aga ctt cag agt aaa ata aag gaa atg cag cag | | | | 3424 |
| Ser Thr Glu Ile Ser Arg Leu Gln Ser Lys Ile Lys Glu Met Gln Gln | | | | |
| 1015 | 1020 | 1025 | 1030 | |
| gca aca tct cct ctc tct atg ctt cag agt ggt tgc cag gtg ata gga | | | | 3472 |
| Ala Thr Ser Pro Leu Ser Met Leu Gln Ser Gly Cys Gln Val Ile Gly | | | | |
| 1031 | 1036 | 1041 | 1046 | |

| | |
|---|------|
| gag ctg gag atg atg gag aca cgc tac gat gag gca cta gaa aat aac | 4192 |
| Glu Leu Glu Met Met Glu Thr Arg Tyr Asp Glu Ala Leu Glu Asn Asn | |
| 1271 1276 1281 1286 | |
| aaa gaa ctc act gca gag gtt ttc agg ttg cag gat gag ctg aag aaa | 4240 |
| Lys Glu Leu Thr Ala Glu Val Phe Arg Leu Gln Asp Glu Leu Lys Lys | |
| 1287 1292 1297 1302 | |
| atg gag gaa gtc act gaa aca ttc ctc agc ctg gaa aag agt tac gat | 4288 |
| Met Glu Glu Val Thr Glu Thr Phe Leu Ser Leu Glu Lys Ser Tyr Asp | |
| 1303 1308 1313 1318 | |
| gag gtc aaa ata gaa aat gag gag ctg aat gtt ctg gtt ttg aga ctt | 4336 |
| Glu Val Lys Ile Glu Asn Glu Glu Leu Asn Val Leu Val Leu Arg Leu | |
| 1319 1324 1329 1334 | |
| caa ggc aag att gag aag ctt cac gag agc gtg gtc aag cgg tgt gac | 4384 |
| Gln Gly Lys Ile Glu Lys Leu His Glu Ser Val Val Lys Arg Cys Asp | |
| 1335 1340 1345 1350 | |
| tgc tgc tta tgg gaa ggc agt tta gag aac ctg gaa atc gaa cct gat | 4432 |
| Cys Cys Leu Trp Glu Gly Ser Leu Glu Asn Leu Glu Ile Glu Pro Asp | |
| 1351 1356 1361 1366 | |
| gga aat ata ctc cag ctc aat cag aca ctg gaa gag tgt gtg ccc agg | 4480 |
| Gly Asn Ile Leu Gln Leu Asn Gln Thr Leu Glu Glu Cys Val Pro Arg | |
| 1367 1372 1377 1382 | |
| gtt agg agt gta cat cat gtc ata gag gaa tgt aag caa gaa aac cag | 4528 |
| Val Arg Ser Val His His Val Ile Glu Glu Cys Lys Gln Glu Asn Gln | |
| 1383 1388 1393 1398 | |
| tac ctt gag ggg aac aca cag ctc ttg gaa aaa gta aaa gca cat gaa | 4576 |
| Tyr Leu Glu Gly Asn Thr Gln Leu Leu Glu Lys Val Lys Ala His Glu | |
| 1399 1404 1409 1414 | |
| att gcc tgg ttt cat gga aca att cag aca cat cac gaa cgg cct aga | 4624 |
| Ile Ala Trp Phe His Gly Thr Ile Gln Thr His His Glu Arg Pro Arg | |
| 1415 1420 1425 1430 | |
| gta cag aat caa ttt ata ctg gag gaa aac act act ctc cta ggc ttt | 4672 |
| Val Gln Asn Gln Phe Ile Leu Glu Glu Asn Thr Thr Leu Leu Gly Phe | |
| 1431 1436 1441 1446 | |
| caa aac aaa cat ttt cag cat cag gcc aca ttg cca aat tta gaa ctg | 4720 |
| Gln Asn Lys His Phe Gln His Gln Ala Thr Leu Pro Asn Leu Glu Leu | |
| 1447 1452 1457 1462 | |
| gaa aaa caa aat ttc cag gag ctg act agg aat ttg agg gaa aaa ttc | 4768 |
| Glu Lys Gln Asn Phe Gln Glu Leu Thr Arg Asn Leu Arg Glu Lys Phe | |
| 1463 1468 1473 1478 | |
| cct att tta att tac caa aaa aat ttt ctt tct ccc gga aaa aag gag | 4816 |
| Pro Ile Leu/Ile Tyr Gln Lys Asn Phe Leu Ser Pro Gly Lys Lys Glu | |
| 1479 1484 1489 1494 | |
| gaa gaa ctg aag gca atg atg cat gac ttg caa atc cct tgc agt gaa | 4864 |

| | |
|---|----------------|
| Glu Glu Leu Lys Ala Met Met His Asp Leu Gln Ile Pro Cys Ser Glu | |
| 1495 | 1500 1505 1510 |
| atg cag caa aag gtt gaa ctt ctg aaa tat gaa tct gaa aag ctt cac | 4912 |
| Met Gln Gln Lys Val Glu Leu Leu Lys Tyr Glu Ser Glu Lys Leu His | |
| 1511 | 1516 1521 1526 |
| cag gaa aat tct ttt ttg aga aat gaa att act act tta aat gaa gaa | 4960 |
| Gln Glu Asn Ser Phe Leu Arg Asn Glu Ile Thr Thr Leu Asn Glu Glu | |
| 1527 | 1532 1537 1542 |
| gat agc att tct aac ctg aaa tta ggg aca tta aat gga tct cag gaa | 5008 |
| Asp Ser Ile Ser Asn Leu Lys Leu Gly Thr Leu Asn Gly Ser Gln Glu | |
| 1543 | 1548 1553 1558 |
| gaa atg tgg caa aaa acg gaa tct gta aaa caa gaa aat gct gca gtt | 5056 |
| Glu Met Trp Gln Lys Thr Glu Ser Val Lys Gln Glu Asn Ala Ala Val | |
| 1559 | 1564 1569 1574 |
| ctg aag atg gtt gaa aat tta aag aaa cag att tca gaa tta aaa atc | 5104 |
| Leu Lys Met Val Glu Asn Leu Lys Lys Gln Ile Ser Glu Leu Lys Ile | |
| 1575 | 1580 1585 1590 |
| aaa aac caa caa ttg gat ttg gaa aat aca gaa ctt agc caa aag aac | 5152 |
| Lys Asn Gln Gln Leu Asp Leu Glu Asn Thr Glu Leu Ser Gln Lys Asn | |
| 1591 | 1596 1601 1606 |
| tct cca aac cag gaa aaa ctg caa gaa ctt aat caa ctg cta aca gaa | 5200 |
| Ser Pro Asn Gln Glu Lys Leu Gln Glu Leu Asn Gln Leu Leu Thr Glu | |
| 1607 | 1612 1617 1622 |
| atg cta tgc cag aag gaa aaa gag cca gga aac agt gca ttg gag gaa | 5248 |
| Met Leu Cys Gln Lys Glu Lys Glu Pro Gly Asn Ser Ala Leu Glu Glu | |
| 1623 | 1628 1633 1638 |
| cgg gaa caa gag aag ttt aat ctg aaa gaa gaa ccg gaa cgt tgt aaa | 5296 |
| Arg Glu Gln Glu Lys Phe Asn Leu Lys Glu Glu Pro Glu Arg Cys Lys | |
| 1639 | 1644 1649 1654 |
| gtg cag tcc tcc act tta gtg tct tct ctg gag gcg gag ctc tct gaa | 5344 |
| Val Gln Ser Ser Thr Leu Val Ser Ser Leu Glu Ala Glu Leu Ser Glu | |
| 1655 | 1660 1665 1670 |
| gtt aac tac agg acc cct att gtg caa cag gaa aac ccc ctt ctc caa | 5392 |
| Val Asn Tyr Arg Thr Pro Ile Val Gln Gln Glu Asn Pro Leu Leu Gln | |
| 1671 | 1676 1681 1686 |
| gat gaa ctg gag aaa atg aaa cag ctg cac aga tgt ccc gat ctc tcg | 5440 |
| Asp Glu Leu Glu Lys Met Lys Gln Leu His Arg Cys Pro Asp Leu Ser | |
| 1687 | 1692 1697 1702 |
| aac ttc cag caa aaa atc tct agt gtt cta agc tac aac gaa aaa ctg | 5488 |
| Asn Phe Gln Gln Lys Ile Ser Ser Val Leu Ser Tyr Asn Glu Lys Leu | |
| 1703 | 1708 1713 1718 |
| ctg aaa gaa aag gaa gct ctg agt gag gaa tta aat agc tgt gtc gat | 5536 |
| Leu Lys Glu Lys Glu Ala Leu Ser Glu Glu Leu Asn Ser Cys Val Asp | |

| 1719 | 1724 | 1729 | 1734 | |
|---|------|------|------|------|
| aag ttg gca aaa tca agt ctt tta gag cat aga att gcg acg atg aag | | | | 5584 |
| Lys Leu Ala Lys Ser Ser Leu Leu Glu His Arg Ile Ala Thr Met Lys | | | | |
| 1735 | 1740 | 1745 | 1750 | |
| cag gaa cag aaa tcc tgg gaa cat cag agt gcg agc tta aag aca cag | | | | 5632 |
| Gln Glu Gln Lys Ser Trp Glu His Gln Ser Ala Ser Leu Lys Thr Gln | | | | |
| 1751 | 1756 | 1761 | 1766 | |
| ctg gtg gct tct cag gaa aag gtt cag aat tta gaa gac acc gtg cag | | | | 5680 |
| Leu Val Ala Ser Gln Glu Lys Val Gln Asn Leu Glu Asp Thr Val Gln | | | | |
| 1767 | 1772 | 1777 | 1782 | |
| aat gta aac ctg caa atg tcc cgg atg aaa tct gac cca cga gtg act | | | | 5728 |
| Asn Val Asn Leu Gln Met Ser Arg Met Lys Ser Asp Pro Arg Val Thr | | | | |
| 1783 | 1788 | 1793 | 1798 | |
| cag cag gaa aag gag gct tta aaa caa gaa gtg atg cct tta cat aag | | | | 5776 |
| Gln Gln Glu Lys Glu Ala Leu Lys Gln Glu Val Met Pro Leu His Lys | | | | |
| 1799 | 1804 | 1809 | 1814 | |
| caa ctt cag aat tct gtg gca aga gct ggc ccc aga gag ata gat cat | | | | 5824 |
| Gln Leu Gln Asn Ser Val Ala Arg Ala Gly Pro Arg Glu Ile Asp His | | | | |
| 1815 | 1820 | 1825 | 1830 | |
| cca tca ggg ttc cat aac cag cag aaa agg ctg tct tgg gac aag ttg | | | | 5872 |
| Pro Ser Gly Phe His Asn Gln Gln Lys Arg Leu Ser Trp Asp Lys Leu | | | | |
| 1831 | 1836 | 1841 | 1846 | |
| gat tat ctg atg aat gag gaa cag cag ttg ttt tgc aaa gag aat gag | | | | 5920 |
| Asp Tyr Leu Met Asn Glu Glu Gln Gln Leu Phe Cys Lys Glu Asn Glu | | | | |
| 1847 | 1852 | 1857 | 1862 | |
| agg ttc cag acc atg gta cag aac acc aaa gcc gaa tta acg cat tcc | | | | 5968 |
| Arg Phe Gln Thr Met Val Gln Asn Thr Lys Ala Glu Leu Thr His Ser | | | | |
| 1863 | 1868 | 1873 | 1878 | |
| cgg gag aag ttc cgt cag ttg gaa tcc aat ctt ctt ccc aag cac caa | | | | 6016 |
| Arg Glu Lys Phe Arg Gln Leu Glu Ser Asn Leu Leu Pro Lys His Gln | | | | |
| 1879 | 1884 | 1889 | 1894 | |
| aaa tat tta aac cca tca ggt acc atg aat ccc aca gag caa gaa aaa | | | | 6064 |
| Lys Tyr Leu Asn Pro Ser Gly Thr Met Asn Pro Thr Glu Gln Glu Lys | | | | |
| 1895 | 1900 | 1905 | 1910 | |
| ttg agc tta aag aga gag tgt gat cag ttt cag aaa gaa caa tct cct | | | | 6112 |
| Leu Ser Leu Lys Arg Glu Cys Asp Gln Phe Gln Lys Glu Gln Ser Pro | | | | |
| 1911 | 1916 | 1921 | 1926 | |
| gct aac agg aag gtc agt cag atg aat tcc ctt gaa caa gaa tta aaa | | | | 6160 |
| Ala Asn Arg Lys Val Ser Gln Met Asn Ser Leu Glu Gln Glu Leu Lys | | | | |
| 1927 | 1932 | 1937 | 1942 | |
| aca att cat ttg gaa aat gaa ggc ctg aaa aag aaa caa gta aaa ctg | | | | 6208 |
| Thr Ile His Leu Glu Asn Glu Gly Leu Lys Lys Lys Gln Val Lys Leu | | | | |
| 1943 | 1948 | 1953 | 1958 | |

| | |
|---|-----|
| ttc gac tgc gcc gtg tgc ctt gag gtg tta cac cag cct gtc cgg acc | 260 |
| Phe Asp Cys Ala Val Cys Leu Glu Val Leu His Gln Pro Val Arg Thr | |
| 35 40 45 50 | |

| | |
|---|-----|
| cgc tgt ggc cac gta ttc tgc cgt tcc tgt att gct acc agt cta aag | 308 |
| Arg Cys Gly His Val Phe Cys Arg Ser Cys Ile Ala Thr Ser Leu Lys | |
| 51 56 61 66 | |

| | |
|---|-----|
| aac aac aag tgg acc tgt cct tat tgc cgg gca tat ctt cct tca gaa | 356 |
| Asn Asn Lys Trp Thr Cys Pro Tyr Cys Arg Ala Tyr Leu Pro Ser Glu | |
| 67 72 77 82 | |

| | |
|---|-----|
| gga gtt cca gca act gat gta gcc aaa aga atg aaa tca gag tat aag | 404 |
| Gly Val Pro Ala Thr Asp Val Ala Lys Arg Met Lys Ser Glu Tyr Lys | |
| 83 88 93 98 | |

| | |
|---|-----|
| aac tgc gct gag tgt gac acc ctg gtt tgc ctc agt gaa atg agg gca | 452 |
| Asn Cys Ala Glu Cys Asp Thr Leu Val Cys Leu Ser Glu Met Arg Ala | |
| 99 104 109 114 | |

| | |
|---|-----|
| cat att cgg act tgt cag aag tac ata gat aag tat gga cca cta caa | 500 |
| His Ile Arg Thr Cys Gln Lys Tyr Ile Asp Lys Tyr Gly Pro Leu Gln | |
| 115 120 125 130 | |

| | |
|---|-----|
| gaa ctt gag gag aca gca gca agg tgt gta tgt ccc ttt tgt cag agg | 548 |
| Glu Leu Glu Glu Thr Ala Ala Arg Cys Val Cys Pro Phe Cys Gln Arg | |
| 131 136 141 146 | |

| | |
|---|-----|
| gaa ctg tat gaa gac agc ttg ctg gat cat tgt att act cat cac aga | 596 |
| Glu Leu Tyr Glu Asp Ser Leu Leu Asp His Cys Ile Thr His His Arg | |
| 147 152 157 162 | |

| | |
|---|-----|
| tcg gaa cgg agg cct gtg ttc tgt cca ctt tgc cgt tta ata ccc gat | 644 |
| Ser Glu Arg Arg Pro Val Phe Cys Pro Leu Cys Arg Leu Ile Pro Asp | |
| 163 168 173 178 | |

| | |
|---|-----|
| gag aat cca agc agc ttc agt ggc agt tta ata aga cat ctg caa gtt | 692 |
| Glu Asn Pro Ser Ser Phe Ser Gly Ser Leu Ile Arg His Leu Gln Val | |
| 179 184 189 194 | |

| | |
|---|-----|
| agt cac act ttg ttt tat gat gat ttc ata gat ttt aat ata att gag | 740 |
| Ser His Thr Leu Phe Tyr Asp Asp Phe Ile Asp Phe Asn Ile Ile Glu | |
| 195 200 205 210 | |

| | |
|---|-----|
| gaa gct ctt atc cga aga gtc tta gac cgg tca ctt ctt gaa tat gtg | 788 |
| Glu Ala Leu Ile Arg Arg Val Leu Asp Arg Ser Leu Leu Glu Tyr Val | |
| 211 216 221 226 | |

| | |
|--|-----|
| aat cac tcg aac acc aca taa tt ttattaaaac gaagggaaaaa gggaccactg | 841 |
| Asn His Ser Asn Thr * | |
| 227 232 | |

| | |
|--|-----|
| aattgcacca ttttaagatgc tgcttgaaca aatgggaggg aagttgtcaa tgattgatgg | 901 |
|--|-----|

| | |
|---|-----|
| gcaaaaatgt acaacacagt tatgtgtttg tccatgttta ttgttatagt gcatttaaaa | 961 |
|---|-----|

actgctttaaa ttttaatggg ttaaattctgt tttacatcct tgagattctt acacatctaa 1021
 caacaaaaaa aattatctac atcagtcatt gttacatgga aaagacaggg ggtaggcaag 1081
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 gggggctccg aggcgggggtc tgggtgttga ggggcgactg gagcc atg gcg gag 174
 Met Ala Glu
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 tcg gcg cct gct cgg cac agg aga aaa cga cgc tcc aca cct tta act 222
 Ser Ala Pro Ala Arg His Arg Arg Lys Arg Arg Ser Thr Pro Leu Thr
 4 9 14 19
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 Ser Ser Thr Leu Pro Ser Gln Ala Thr Glu Lys Ser Ser Tyr Phe Gln
 20 25 30 35
 acc acc gag att tca ctc tgg acg gtg gtg gcc gct att cag gct gtg 318
 Thr Thr Glu Ile Ser Leu Trp Thr Val Val Ala Ala Ile Gln Ala Val
 36 41 46 51
 gag aag aag atg gag tcc cag gct gcc cgg cta cag agc ctg gag ggg 366
 Glu Lys Lys Met Glu Ser Gln Ala Ala Arg Leu Gln Ser Leu Glu Gly
 52 57 62 67
 cgc acg ggg aca gcc gag aag aag ctg gct gac tgc gag aag atg gcc 414
 Arg Thr Gly Thr Ala Glu Lys Lys Leu Ala Asp Cys Glu Lys Met Ala
 68 73 78 83
 gtg gag ttc ggg aac cag ctg gag ggc aag tgg gcc gtg ctg ggg acc 462

| | | | | | | | | | | | | | | | | |
|------------|------------|------------|------------|-------------|------------|------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Val | Glu | Phe | Gly | Asn | Gln | Leu | Glu | Gly | Lys | Trp | Ala | Val | Leu | Gly | Thr | |
| 84 | | | | | 89 | | | | | 94 | | | | | 99 | |
| | | | | | | | | | | | | | | | | |
| ctg | ctg | cag | gag | tat | ggg | cta | ctg | cag | agg | cgg | ctg | gag | aac | gtg | gag | 510 |
| Leu | Leu | Gln | Glu | Tyr | Gly | Leu | Leu | Gln | Arg | Arg | Leu | Glu | Asn | Val | Glu | |
| 100 | | | | | 105 | | | | | 110 | | | | | 115 | |
| | | | | | | | | | | | | | | | | |
| aac | ctg | ctg | cgc | aac | agg | aac | ttc | tgg | atc | ctg | cgg | ctg | ccc | ccg | ggc | 558 |
| Asn | Leu | Leu | Arg | Asn | Arg | Asn | Phe | Trp | Ile | Leu | Arg | Leu | Pro | Pro | Gly | |
| 116 | | | | | 121 | | | | | 126 | | | | | 131 | |
| | | | | | | | | | | | | | | | | |
| agc | aag | ggg | gag | tcc | cct | aag | gtg | cct | atg | aca | ttt | gat | gat | gtg | gct | 606 |
| Ser | Lys | Gly | Glu | Ser | Pro | Lys | Val | Pro | Met | Thr | Phe | Asp | Asp | Val | Ala | |
| 132 | | | | | 137 | | | | | 142 | | | | | 147 | |
| | | | | | | | | | | | | | | | | |
| gtg | tag | ttctctgagc | aagtgtgggg | caagcccagt | cgttcagaat | tggagccgag | | | | | | | | | | 662 |
| Val | * | | | | | | | | | | | | | | | |
| 148 | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| ttcacggaga | cagagaacca | gacagacaga | agaccagag | ccctgggcca | ctccactcct | | | | | | | | | | | 722 |
| | | | | | | | | | | | | | | | | |
| gatgatttag | ctgccggtcc | cactctgacc | ttttggaaag | aggctgtgtg | aggaaggagt | | | | | | | | | | | 782 |
| | | | | | | | | | | | | | | | | |
| agcctgggtg | ggggtctcac | tggcctgact | ctgcaaggaa | gagggtggctg | cacttcccc | | | | | | | | | | | 842 |
| | | | | | | | | | | | | | | | | |
| agcttccagc | tccagacctt | taagccccag | gtgcttgtgc | ctangattta | atgatcaaaa | | | | | | | | | | | 902 |
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<210> 1079
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| tcatttcaaa gctatagaaa aattgcaaaa acagtataag aaattctcat atacccttta | 180 |
| cccaaatttg ccaagtgttt acatttttcc tgtttgcttt gttgatgacc atcaacaaaa | 240 |
| taccaccagg aacatacctg taaccagaga cagctgattg gtagctttct gcagcaagga | 300 |
| agctcacata ccacggcaca attctgcttt ccctggaact gtgtcaattca tgactctgca | 360 |
| aattccctaa agtaggagga aaa atg acc atg tcc aag gag gca gtg acc | 410 |
| Met Thr Met Ser Lys Glu Ala Val Thr | |

1

5

| | |
|---|------|
| ttc aag gat gtg gca gtg gtc ttc act gag gag gag ctg ggg ctg ctg | 458 |
| Phe Lys Asp Val Ala Val Val Phe Thr Glu Glu Glu Leu Gly Leu Leu | |
| 10 15 20 25 | |
| gac ctt gcc cag agg aag ctg tat cga gat gtg atg ctg gag aac ttc | 506 |
| Asp Leu Ala Gln Arg Lys Leu Tyr Arg Asp Val Met Leu Glu Asn Phe | |
| 26 31 36 41 | |
| agg aac ctg ctg tca gtg ggg cat caa cca ttc cac cga gat act ttc | 554 |
| Arg Asn Leu Leu Ser Val Gly His Gln Pro Phe His Arg Asp Thr Phe | |
| 42 47 52 57 | |
| cac ttt cta agg gag gaa aag ttt tgg atg atg gat ata gca acc caa | 602 |
| His Phe Leu Arg Glu Glu Lys Phe Trp Met Met Asp Ile Ala Thr Gln | |
| 58 63 68 73 | |
| aga gaa ggg aat tca gga ggc aag atc caa cct gag atg aag act ttt | 650 |
| Arg Glu Gly Asn Ser Gly Gly Lys Ile Gln Pro Glu Met Lys Thr Phe | |
| 74 79 84 89 | |
| cca gaa gca gga cca cat gaa ggg tgg tcc tgc cag cag atc tgg gaa | 698 |
| Pro Glu Ala Gly Pro His Glu Gly Trp Ser Cys Gln Gln Ile Trp Glu | |
| 90 95 100 105 | |
| gaa att gca agt gat tta acc agg cct caa gac tct acc ata aag agc | 746 |
| Glu Ile Ala Ser Asp Leu Thr Arg Pro Gln Asp Ser Thr Ile Lys Ser | |
| 106 111 116 121 | |
| tct cag ttc ttt gaa cag ggt gat gcc cac tcc cag gtt gag gaa gga | 794 |
| Ser Gln Phe Phe Glu Gln Gly Asp Ala His Ser Gln Val Glu Glu Gly | |
| 122 127 132 137 | |
| ata tct ata atg cac aca gga cag aaa cct tcc aat tgt ggg aag agt | 842 |
| Ile Ser Ile Met His Thr Gly Gln Lys Pro Ser Asn Cys Gly Lys Ser | |
| 138 143 148 153 | |
| aaa caa tcc ttc agt gat atg tcc atc ttt gat ctt cct cag caa ata | 890 |
| Lys Gln Ser Phe Ser Asp Met Ser Ile Phe Asp Leu Pro Gln Gln Ile | |
| 154 159 164 169 | |
| cgc tca gca gag aag tct cat tcc tgt gat gag tgt gga aaa agc ttc | 938 |
| Arg Ser Ala Glu Lys Ser His Ser Cys Asp Glu Cys Gly Lys Ser Phe | |
| 170 175 180 185 | |
| tgt tac atc tca gca ctt cat att cat cag aga gtc cac ctg gga gag | 986 |
| Cys Tyr Ile Ser Ala Leu His Ile His Gln Arg Val His Leu Gly Glu | |
| 186 191 196 201 | |
| aaa ctc ttt aag tgt gac gtg tgt ggt aag gaa ttc agt cag agt tta | 1034 |
| Lys Leu Phe Lys Cys Asp Val Cys Gly Lys Glu Phe Ser Gln Ser Leu | |
| 202 207 212 217 | |
| cat ctg caa act cat cag aga gtc cat act gga gag aaa cct ttc aaa | 1082 |
| His Leu Gln Thr His Gln Arg Val His Thr Gly Glu Lys Pro Phe Lys | |
| 218 223 228 233 | |

| | |
|--|------|
| tgt gaa caa tgt ggg aga ggc ttc aga tgt aga tca gca ctt aca gtt Cys Glu Gln Cys Gly Arg Gly Phe Arg Cys Arg Ser Ala Leu Thr Val 234 239 244 249 | 1130 |
| cat tgc aaa tta cac atg gga gag aaa cat tat aat tgt gag gca tgt His Cys Lys Leu His Met Gly Glu Lys His Tyr Asn Cys Glu Ala Cys 250 255 260 265 | 1178 |
| ggg agg gcc ttc att cat gat ttc cag ctt cag aaa cat cag aga att Gly Arg Ala Phe Ile His Asp Phe Gln Leu Gln Lys His Gln Arg Ile 266 271 276 281 | 1226 |
| cat act ggg gag aag cca ttc aaa tgt gaa ata tgt ggt aag agc ttc His Thr Gly Glu Lys Pro Phe Lys Cys Glu Ile Cys ³ Gly Lys Ser Phe 282 287 292 297 | 1274 |
| tgt ctt agg tca agt ctt aat agg cat tgc atg gtc cac aca gca gag Cys Leu Arg Ser Ser Leu Asn Arg His Cys Met Val His Thr Ala Glu 298 303 308 313 | 1322 |
| aaa ctg tac aaa tct gaa aag tat gga aga ggt ttc att gat agg cta Lys Leu Tyr Lys Ser Glu Lys Tyr Gly Arg Gly Phe Ile Asp Arg Leu 314 319 324 329 | 1370 |
| gat ttg cat aag cat cag atg att cat atg gga cag aaa cca tat aat Asp Leu His Lys His Gln Met Ile His Met Gly Gln Lys Pro Tyr Asn 330 335 340 345 | 1418 |
| tgt aaa gaa tgt ggg aag agc ttc aaa tgg tcc tca tat ctt ttg gtc Cys Lys Glu Cys Gly Lys Ser Phe Lys Trp Ser Ser Tyr Leu Leu Val 346 351 356 361 | 1466 |
| cat caa cga gtc cac act gga gaa aag cca tac aaa tgt gag gag tgt His Gln Arg Val His Thr Gly Glu Lys Pro Tyr Lys Cys Glu Glu Cys 362 367 372 377 | 1514 |
| ggg aag ggc tac att agt aag tca ggt ctt gac ttg cac cat aga gcc Gly Lys Gly Tyr Ile Ser Lys Ser Gly Leu Asp Leu His His Arg Ala 378 383 388 393 | 1562 |
| cac aca gga gag aga cct tat aac tgt gat gac tgt ggg aag agc ttt His Thr Gly Glu Arg Pro Tyr Asn Cys Asp Asp Cys Gly Lys Ser Phe 394 399 404 409 | 1610 |
| aga cag gcc tca agt att ttg aat cat aag aga ctc cat tgc cga aaa Arg Gln Ala Ser Ser Ile Leu Asn His Lys Arg Leu His Cys Arg Lys 410 415 420 425 | 1658 |
| aaa cca ttc aaa tgt gag gat tgt gga aag aag ctt gta tac cgg tca Lys Pro Phe Lys Cys Glu Asp Cys Gly Lys Lys Leu Val Tyr Arg Ser 426 431 436 441 | 1706 |
| tac cgt aaa gac caa caa aaa aac cac agt gga gaa aat cca tcc aaa Tyr Arg Lys Asp Gln Gln Lys Asn His Ser Gly Glu Asn Pro Ser Lys 442 447 452 457 | 1754 |
| tgt gaa gac tgt ggg aag cgc tac aag agg cgc ttg aat ctt gat ata | 1802 |

Cys Glu Asp Cys Gly Lys Arg Tyr Lys Arg Arg Leu Asn Leu Asp Ile
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 cggaaaagcaa aggc atg att tca cct tca ctt gaa ctg ctt cat tca gga 170
 Met Ile Ser Pro Ser Leu Glu Leu Leu His Ser Gly
 1 5 10
 ctc tgc aaa ttc cct gaa gta gaa gga aaa atg acc aca ttc aaa gag 218
 Leu Cys Lys Phe Pro Glu Val Glu Gly Lys Met Thr Thr Phe Lys Glu
 13 18 23 28
 gca gtg aca ttc aag gat gtg gct gtg gtc ttc act gag gag gag ctg 266
 Ala Val Thr Phe Lys Asp Val Ala Val Val Phe Thr Glu Glu Glu Leu
 29 34 39 44
 ggg ctg ctg gac cct gcc cag agg aag ctg tac cga gat gtg atg cta 314
 Gly Leu Leu Asp Pro Ala Gln Arg Lys Leu Tyr Arg Asp Val Met Leu
 45 50 55 60
 gag aac ttc agg aac ctg ctc tca gta ggg aat caa cca ttc cac caa 362
 Glu Asn Phe Arg Asn Leu Leu Ser Val Gly Asn Gln Pro Phe His Gln
 61 66 71 76
 gat act ttc cac ttc tta ggg aag gaa aag ttt tgg aag atg aag aca 410
 Asp Thr Phe His Phe Leu Gly Lys Glu Lys Phe Trp Lys Met Lys Thr
 77 82 87 92
 aca agc caa aga gaa ggg aat tca gga ggc aag atc caa att gag atg 458
 Thr Ser Gln Arg Glu Gly Asn Ser Gly Gly Lys Ile Gln Ile Glu Met
 93 98 103 108
 gag act gtt cca gaa gca gga cca cat gaa gag tgg tcc tgt cag caa 506
 Glu Thr Val Pro Glu Ala Gly Pro His Glu Glu Trp Ser Cys Gln Gln
 109 114 119 124

| | |
|---|------|
| ata tgg gaa caa att gca agt gac cta acc agg tct caa aac tcc ata | 554 |
| Ile Trp Glu Gln Ile Ala Ser Asp Leu Thr Arg Ser Gln Asn Ser Ile | |
| 125 130 135 140 | |
| agg aac agc tct cag ttc ttc aaa gaa ggt gat gtc ccc tgc cag att | 602 |
| Arg Asn Ser Ser Gln Phe Phe Lys Glu Gly Asp Val Pro Cys Gln Ile | |
| 141 146 151 156 | |
| gag gca aga cta tct ata agt cac gtg caa cag aaa cct tac cgt tgt | 650 |
| Glu Ala Arg Leu Ser Ile Ser His Val Gln Gln Lys Pro Tyr Arg Cys | |
| 157 162 167 172 | |
| aat gaa tgt aaa cag tcc atc agt gat gtt tct gtc ttt gat ctt cat | 698 |
| Asn Glu Cys Lys Gln Ser Ile Ser Asp Val Ser Val Phe Asp Leu His | |
| 173 178 183 188 | |
| caa caa tca cac tca gga gag aaa tct cat aca tgt ggt gag tgt gga | 746 |
| Gln Gln Ser His Ser Gly Glu Lys Ser His Thr Cys Gly Glu Cys Gly | |
| 189 194 199 204 | |
| aaa agc ttc tgt tac agc cca gcc ctt cat att cat cag aga gtc cat | 794 |
| Lys Ser Phe Cys Tyr Ser Pro Ala Leu His Ile His Gln Arg Val His | |
| 205 210 215 220 | |
| atg gga gaa aaa tgc tat aag tgt gat gtg tgt ggt aag gaa ttt aat | 842 |
| Met Gly Glu Lys Cys Tyr Lys Cys Asp Val Cys Gly Lys Glu Phe Asn | |
| 221 226 231 236 | |
| cag agc tca cat ctg caa act cat cag aga gtc cat act gga gag aaa | 890 |
| Gln Ser Ser His Leu Gln Thr His Gln Arg Val His Thr Gly Glu Lys | |
| 237 242 247 252 | |
| cca ttc aaa cgt ggg caa tgt ggg aaa ggc ttc cat agt aga tca gca | 938 |
| Pro Phe Lys Arg Gly Gln Cys Gly Lys Gly Phe His Ser Arg Ser Ala | |
| 253 258 263 268 | |
| ctt aat gtt cat tgc aaa ttg cac aca gga gag aaa cct tat aat tgt | 986 |
| Leu Asn Val His Cys Lys Leu His Thr Gly Glu Lys Pro Tyr Asn Cys | |
| 269 274 279 284 | |
| gag gaa tgt ggg aaa gcc ttc att cat gat tca cag ctc cag gaa cat | 1034 |
| Glu Glu Cys Gly Lys Ala Phe Ile His Asp Ser Gln Leu Gln Glu His | |
| 285 290 295 300 | |
| cag aga atc cat act ggg gag aag cca ttc aaa tgt gat ata tgt ggt | 1082 |
| Gln Arg Ile His Thr Gly Glu Lys Pro Phe Lys Cys Asp Ile Cys Gly | |
| 301 306 311 316 | |
| aag agc ttc cgt gtt aga tca aga ctt aat agg cat tcc atg gtt cac | 1130 |
| Lys Ser Phe Arg Val Arg Ser Arg Leu Asn Arg His Ser Met Val His | |
| 317 322 327 332 | |
| aca gga gaa aaa cca ttc aga tgt gat aca tgt ggc aag aac ttt cgt | 1178 |
| Thr Gly Glu Lys Pro Phe Arg Cys Asp Thr Cys Gly Lys Asn Phe Arg | |
| 333 338 343 348 | |
| cag aga tca gca ctt aat agt cat tcc atg gtc cac ata gaa gag aag | 1226 |

| | | | | |
|---|-----|-----|-----|------|
| 573 | 578 | 583 | 588 | |
| cca ttg aaa tct gga gtg tgg gaa gag atc tac tca gaa ttc aca gct | | | | 1946 |
| Pro Leu Lys Ser Gly Val Trp Glu Glu Ile Tyr Ser Glu Phe Thr Ala | | | | |
| 589 | 594 | 599 | 604 | |
| tca ttt aca tca gta agt cta tgt ggg aga aaa gcc ata taa | | | | 1988 |
| Ser Phe Thr Ser Val Ser Leu Cys Gly Arg Lys Ala Ile * | | | | |
| 605 | 610 | 615 | | |

<210> 1081
 <211> 1677
 <212> DNA
 <213> Homo sapiens

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 <222> (252)..(1106)

<220>
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 <222> (1)...(1677)
 <223> n = a,t,c or g

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| <400> 1081 | |
| atatctgaaa tttcagnccg cgtcgnccgc ggccgcgtcg accttccgtg tgtcgccgcc | 60 |
| gttgccgcct cagcttcagc ctcgttactc ctgcggttct gtgactgtgc tgctggcggt | 120 |
| aacggcgcca ggtgaaggga ggtgacggag tgtgcccgcg cgcgcggggg tcccctcagt | 180 |
| cccagcagtt cccttcgtgc gcggggggcg gcgaggggtct tcagcagtcg ggagaggccc | 240 |
| ttgacggcgc c atg tcg gcg ggc ggt cca tgc cca gca gca gcc gga ggg | 290 |
| Met Ser Ala Gly Gly Pro Cys Pro Ala Ala Ala Gly Gly | |
| 1 5 10 | |
| ggc cca ggg ggc gcc tcc tgc tcc gtg ggg gcc cct ggc ggg gta tcc | 338 |
| Gly Pro Gly Gly Ala Ser Cys Ser Val Gly Ala Pro Gly Gly Val Ser | |
| 14 19 24 29 | |
| atg ttc cgg tgg ctg gag gtg ctg gag aag gag ttc gac aaa gct ttt | 386 |
| Met Phe Arg Trp Leu Glu Val Leu Glu Lys Glu Phe Asp Lys Ala Phe | |
| 30 35 40 45 | |
| gtg gat gtg gat ctg ctc ctg gga gag atc gat cca gac caa gcg gac | 434 |
| Val Asp Val Asp Leu Leu Gly Glu Ile Asp Pro Asp Gln Ala Asp | |
| 46 51 56 61 | |
| atc act tat gag ggg cga cag aag atg acc agc ctg agc tcc tgc ttt | 482 |
| Ile Thr Tyr Glu Gly Arg Gln Lys Met Thr Ser Leu Ser Ser Cys Phe | |
| 62 67 72 77 | |

| | |
|---|------|
| gca cag ctt tgc cac aaa gcc cag tct gtg tct caa atc aac cac aag Ala Gln Leu Cys His Lys Ala Gln Ser Val Ser Gln Ile Asn His Lys 78 83 88 93 | 530 |
| ctg gag gca cag ttg gtg gat ctg aaa tct gaa ctg aca gaa acc caa Leu Glu Ala Gln Leu Val Asp Leu Lys Ser Glu Leu Thr Glu Thr Gln 94 99 104 109 | 578 |
| gca gag aaa gtt gtt ttg gag aaa gaa gta cat gat cag ctt tta cag Ala Glu Lys Val Val Leu Glu Lys Glu Val His Asp Gln Leu Leu Gln 110 115 120 125 | 626 |
| ctg cac tct att cag ctg cag ctt cat gct aaa act ggt caa agt gct Leu His Ser Ile Gln Leu Gln Leu His Ala Lys Thr Gly Gln Ser Ala 126 131 136 141 | 674 |
| gac tct ggt acc att aag gca aaa ttg gaa aga gag ctt gag gca aac Asp Ser Gly Thr Ile Lys Ala Lys Leu Glu Arg Glu Leu Glu Ala Asn 142 147 152 157 | 722 |
| aaa aaa gaa aaa atg aaa gaa gca caa ctt gaa gct gaa gtg aaa ttg Lys Lys Glu Lys Met Lys Glu Ala Gln Leu Glu Ala Glu Val Lys Leu 158 163 168 173 | 770 |
| ttg aga aaa gag aat gaa gcc ctt cgt aga cat ata gct gtt ctc cag Leu Arg Lys Glu Asn Glu Ala Leu Arg Arg His Ile Ala Val Leu Gln 174 179 184 189 | 818 |
| gct gaa gta tat ggg gcg aga cta gct gcc aag tac ttg gat aag gaa Ala Glu Val Tyr Gly Ala Arg Leu Ala Ala Lys Tyr Leu Asp Lys Glu 190 195 200 205 | 866 |
| ctg gca gga agg gtc caa cag ata caa ttg cta gga cga gat atg aag Leu Ala Gly Arg Val Gln Gln Ile Gln Leu Leu Gly Arg Asp Met Lys 206 211 216 221 | 914 |
| gga cct gct cat gat aag ctt tgg aac caa tta gaa gct gaa ata cat Gly Pro Ala His Asp Lys Leu Trp Asn Gln Leu Glu Ala Glu Ile His 222 227 232 237 | 962 |
| ttg cat cgt cac aaa act gtg atc cga gcc tgc aga gga cgt aat gac Leu His Arg His Lys Thr Val Ile Arg Ala Cys Arg Gly Arg Asn Asp 238 243 248 253 | 1010 |
| ttg aaa cga cca atg caa gca cca cca ggc cat gat caa gat tcc cta Leu Lys Arg Pro Met Gln Ala Pro Pro Gly His Asp Gln Asp Ser Leu 254 259 264 269 | 1058 |
| aag aaa agc caa ggt gtt ggt cca att aga aaa agt tct cct cct taa Lys Lys Ser Gln Gly Val Gly Pro Ile Arg Lys Ser Ser Pro Pro * 270 275 280 285 | 1106 |
| ggaagatcat gaaggccttg gcatttcaat tacaggtggg aaagaacatg gtgttccaat | 1166 |
| cctcatctct gagatccatc cggggcaacc tgctgataga tgcggagggc tgcacgttgg | 1226 |
| ggatgctatt ttggcagtca acggagttaa cctaaggagac acaaagcata aagaagctgt | 1286 |

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aactattctt tctcagcaga gaggagagat tgaatttgaa gtagtttatg tggctcctga 1346
agtggattct gatgatgaaa acgtagagta tgaagatgag agtggacatc gttaccgttt 1406
gtaccttgat gagttagaag gaggtggtaa ccctgggtgct agttgcaaag acacaagtgg 1466
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agacctgggc actgcaagtg aaactccgct agatgacggt gcttcaaaat tagatgatct 1586
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atcagactat tctgaatttg gggcactggg g 1677

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<210> 1082
<211> 1809
<212> DNA
<213> Homo sapiens

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<220>
<221> CDS
<222> (360)..(1487)

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tttgattggc ttaaaatttt gcaaccgccc ggacaaactt gccgaggatt ggctgagcct 180
tcagttttga aaatcatagt tttcgcccgc gctgcgccgc ctggttgctc ctcccggtgcg 240
gtgagtcccg aaggcccgga gccaaagtggg tctgggcaag cggggcctta cctagggata 300
ccaccggact tggatcggag cagccttcag gggacgtggc gcagtcgaac agagccacc 359
atg ggg acg acg gcc cca ggg ccc att cac ctg ctg gag cta tgt gac 407
Met Gly Thr Thr Ala Pro Gly Pro Ile His Leu Leu Glu Leu Cys Asp
  1           5           10          15

cag aag ctc atg gag ttt ctc tgc aac atg gat aat aag gac ttg gtg 455
Gln Lys Leu Met Glu Phe Leu Cys Asn Met Asp Asn Lys Asp Leu Val
 17           22           27          32

tgg ctt gag gaa atc caa gag gag gcc gag cgc atg ttc acc aga gaa 503
Trp Leu Glu Glu Ile Gln Glu Glu Ala Glu Arg Met Phe Thr Arg Glu
 33           38           43          48

ttc agc aaa gag cca gag ctg atg ccc aaa aca cct tct cag aag aac 551
Phe Ser Lys Glu Pro Glu Leu Met Pro Lys Thr Pro Ser Gln Lys Asn
 49           54           59          64

cga cgg aag aag aga cgg att tct tat gtt cag gat gaa aac aga gat 599
Arg Arg Lys Lys Arg Arg Ile Ser Tyr Val Gln Asp Glu Asn Arg Asp

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| 65 | 70 | 75 | 80 | |
|---|-----|-----|-----|------|
| ccc atc agg aga agg tta tcc cgc aga aag tct cgg agc agc cag ctg | | | | 647 |
| Pro Ile Arg Arg Arg Leu Ser Arg Arg Lys Ser Arg Ser Ser Gln Leu | | | | |
| 81 | 86 | 91 | 96 | |
| agc tcc cga cgc ctc cgc agc aag gac agt gta gag aag ctg gct aca | | | | 695 |
| Ser Ser Arg Arg Leu Arg Ser Lys Asp Ser Val Glu Lys Leu Ala Thr | | | | |
| 97 | 102 | 107 | 112 | |
| gtg gtc ggg gag aac ggc tcc gtt ctg cgg cgt gtg acc cgt gct gcg | | | | 743 |
| Val Val Gly Glu Asn Gly Ser Val Leu Arg Arg Val Thr Arg Ala Ala | | | | |
| 113 | 118 | 123 | 128 | |
| gct gca gct gcc gcg gct acc atg gca ttg gct gca cct tct tca ccc | | | | 791 |
| Ala Ala Ala Ala Ala Ala Thr Met Ala Leu Ala Ala Pro Ser Ser Pro | | | | |
| 129 | 134 | 139 | 144 | |
| acc cct gag tct ccc acg atg ctg act aag aag ccc gag gat aac cac | | | | 839 |
| Thr Pro Glu Ser Pro Thr Met Leu Thr Lys Lys Pro Glu Asp Asn His | | | | |
| 145 | 150 | 155 | 160 | |
| acc cag tgc cag ctg gtg cct gtg gtg gag atc ggc atc agt gag cgc | | | | 887 |
| Thr Gln Cys Gln Leu Val Pro Val Val Glu Ile Gly Ile Ser Glu Arg | | | | |
| 161 | 166 | 171 | 176 | |
| cag aat gct gag cag cat gtc acc cag ctc atg tcc acc gag cct ctg | | | | 935 |
| Gln Asn Ala Glu Gln His Val Thr Gln Leu Met Ser Thr Glu Pro Leu | | | | |
| 177 | 182 | 187 | 192 | |
| ccc cgc act ctg tcc ccg act cca gct tca gcc aca gct cca acc tcc | | | | 983 |
| Pro Arg Thr Leu Ser Pro Thr Pro Ala Ser Ala Thr Ala Pro Thr Ser | | | | |
| 193 | 198 | 203 | 208 | |
| cag ggc atc ccg aca tca gat gag gaa tca aca cct aag aag tcg aag | | | | 1031 |
| Gln Gly Ile Pro Thr Ser Asp Glu Glu Ser Thr Pro Lys Lys Ser Lys | | | | |
| 209 | 214 | 219 | 224 | |
| gcc agg ata ctg gag tcc atc aca gtg agc tcc ctg atg gct aca ccc | | | | 1079 |
| Ala Arg Ile Leu Glu Ser Ile Thr Val Ser Ser Leu Met Ala Thr Pro | | | | |
| 225 | 230 | 235 | 240 | |
| cag gac ccc aag ggt caa ggg gtc ggg acg ggg cgg tct gcg tct aag | | | | 1127 |
| Gln Asp Pro Lys Gly Gln Gly Val Gly Thr Gly Arg Ser Ala Ser Lys | | | | |
| 241 | 246 | 251 | 256 | |
| ctc agg att gcg cag gtc tcc cct ggc cca cgg gac tcg cca gcc ttt | | | | 1175 |
| Leu Arg Ile Ala Gln Val Ser Pro Gly Pro Arg Asp Ser Pro Ala Phe | | | | |
| 257 | 262 | 267 | 272 | |
| cca gat tct cca tgg cgg gag cgg gtg ctg gct ccc atc ctg ccg gat | | | | 1223 |
| Pro Asp Ser Pro Trp Arg Glu Arg Val Leu Ala Pro Ile Leu Pro Asp | | | | |
| 273 | 278 | 283 | 288 | |
| aac ttc tcc acg ccc acg ggc tct cgc acg gac tct caa tcg gtg cgg | | | | 1271 |
| Asn Phe Ser Thr Pro Thr Gly Ser Arg Thr Asp Ser Gln Ser Val Arg | | | | |
| 289 | 294 | 299 | 304 | |

| | |
|--|------|
| cac agc ccg atc gcc ccg tct tcc ccg agt ccc caa gtc tta gcc cag | 1319 |
| His Ser Pro Ile Ala Pro Ser Ser Pro Ser Pro Gln Val Leu Ala Gln | |
| 305 310 315 320 | |
| aag tac tct ctg gtg gcc aaa cag gaa agt gtt gtc cgc agg gcg agc | 1367 |
| Lys Tyr Ser Leu Val Ala Lys Gln Glu Ser Val Val Arg Arg Ala Ser | |
| 321 326 331 336 | |
| aga agg ctt gcc aag aag act gcc gaa gag cca gct gcc tct ggc cgc | 1415 |
| Arg Arg Leu Ala Lys Lys Thr Ala Glu Glu Pro Ala Ala Ser Gly Arg | |
| 337 342 347 352 | |
| atc atc tgt gag tct ggg ggc ttg gca gtg gcg ggt ggt cct tgg tgc | 1463 |
| Ile Ile Cys Glu Ser Gly Gly Leu Ala Val Ala Gly Gly Pro Trp Cys | |
| 353 358 363 368 | |
| cag gct cag atg gag gct ttc tga gggatcatct agcaaggagc tgtccagaga | 1517 |
| Gln Ala Gln Met Glu Ala Phe * | |
| 369 374 | |
| gctttctgca gtgaggtaga tgttacacat ctgtgctgtc ctgggatggg ggccgctagc | 1577 |
| tggectcatc tggcgattgt gtcctcaaaa tgtggctagt gtgattgagg aactgaattt | 1637 |
| taaattgtat tgcattctac ttctttttaga tttaaatagt tacatgtagc tagtggcttc | 1697 |
| cacgttggat ggtgcaggtc tgacccaacc tacttgcttt acaagtgagg aaactgagct | 1757 |
| tcgggaaggc tcagaacaac gacagcggcc gctctagagg atccaagctt ac | 1809 |

<210> 1083
 <211> 8309
 <212> DNA
 <213> Homo sapiens

<220>
 <221> CDS
 <222> (162)..(2843)

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| gccagtgtccc atgcggggcc gccgccagtgc acgccggaga ggtgttcccc ccacactggg | 120 |
| gctcccacta ctgcgaggag tgacccacga aggccacaga g atg gcc ggt gct | 173 |
| Met Ala Gly Ala | |
| 1 | |
| tcg gtg aag gtg gcg gtg cgg gtc cgc ccc ttc aat tcc cgg gaa atg | 221 |
| Ser Val Lys Val Ala Val Arg Val Arg Pro Phe Asn Ser Arg Glu Met | |
| 5 10 15 20 | |
| agc cgt gac tcc aag tgc atc att cag atg tct gga agc acc acc acc | 269 |

| 245 | 250 | 255 | 260 | |
|---|---|---|------------|------|
| aag ggc acg cgc ctc Lys Gly Thr Arg Leu 261 | aag gag ggg gcc aac Lys Glu Gly Ala Asn 266 | atc aac aag tcg ctg Ile Asn Lys Ser Leu Thr 271 | acc 276 | 989 |
| acc ctg ggc aag gtc Thr Leu Gly Lys Val 277 | atc tcc gcc ctg gct Ile Ser Ala Leu Ala 282 | gaa atg gac tcc gga Glu Met Asp Ser Gly Pro 287 | ccc 292 | 1037 |
| aac aag aac aag aaa Asn Lys Asn Lys Lys 293 | aag aag aag aca gat Lys Lys Lys Thr Asp 298 | ttc att ccg tac cga Phe Ile Pro Tyr Arg Asp 303 | gat 308 | 1085 |
| tcc gtg ttg acc tgg Ser Val Leu Thr Trp 309 | ctc ctc cgg gaa aac Leu Leu Arg Glu Asn 314 | ctg ggc ggt aac tca Leu Gly Gly Asn Ser Arg 319 | agg 324 | 1133 |
| aca gct atg gtg gca Thr Ala Met Val Ala 325 | gcc ctg agt cct gca Ala Leu Ser Pro Ala 330 | gac atc aac tac gat Asp Ile Asn Tyr Asp Glu 335 | gag 340 | 1181 |
| acc ctt agc acg ctg Thr Leu Ser Thr Leu 341 | agg tat gct gac cgg Arg Tyr Ala Asp Arg 346 | gcc aag cag atc cgc Ala Lys Gln Ile Arg Cys 351 | tgc 356 | 1229 |
| aat gct gtc atc aat Asn Ala Val Ile Asn 357 | gag gac ccc aac aac Glu Asp Pro Asn Asn 362 | aag ctg atc cgc gag Lys Leu Ile Arg Glu Leu 367 | ctg 372 | 1277 |
| aag gat gag gtg acc Lys Asp Glu Val Thr 373 | cgg ctg cgg gac ctt Arg Leu Arg Asp Leu 378 | ctg tac gcc cag ggt Leu Tyr Ala Gln Gly Leu 383 | ctt 388 | 1325 |
| ggc gac atc act gac Gly Asp Ile Thr Asp 389 | atg acc aat gcc ctg Met Thr Asn Ala Leu 394 | gtg ggt atg agc ccc Val Gly Met Ser Pro Ser 399 | tca 404 | 1373 |
| tcc tcg ctc tca gcc Ser Ser Leu Ser Ala 405 | ctg tcc agc cgc gcg Leu Ser Ser Arg Ala 410 | gcc tcc gtg tcc agc Ala Ala Ser Val Ser Ser 415 | ctc 420 | 1421 |
| cac gag cgc atc ttg His Glu Arg Ile Leu 421 | ttt gcc ccg ggc agc Phe Ala Pro Gly Ser 426 | gag gag gcc att gaa Glu Glu Ala Ile Glu Arg 431 | aga 436 | 1469 |
| ctg aag gaa aca gag Leu Lys Glu Thr Glu 437 | aag atc ata gct gag Lys Ile Ile Ala Glu 442 | ctc aat gag acc tgg Leu Asn Glu Thr Trp Glu 447 | gag 452 | 1517 |
| gag aag ctg cgg cgg Glu Lys Leu Arg Arg 453 | aca gaa gcc atc cgg Thr Glu Ala Ile Arg 458 | atg gag agg gaa gcc Met Glu Arg Glu Ala Leu 463 | ctg 468 | 1565 |
| ctg gcc gag atg ggt Leu Ala Glu Met Gly 469 | gtg gcc atg agg gag Val Ala Met Arg Glu 474 | gat ggc ggc acc ttg Asp Gly Gly Thr Leu Gly 479 | ggc 484 | 1613 |

| | |
|---|------|
| gta ttc tct ccc aaa aag aca cca cac ctc gtc aac ctg aac gag gac | 1661 |
| Val Phe Ser Pro Lys Lys Thr Pro His Leu Val Asn Leu Asn Glu Asp | |
| 485 490 495 500 | |
| ccg ctg atg tct gag tgc ctg ctc tac tac atc aag gat ggg atc acc | 1709 |
| Pro Leu Met Ser Glu Cys Leu Leu Tyr Tyr Ile Lys Asp Gly Ile Thr | |
| 501 506 511 516 | |
| aga gtg ggc agg gag gat ggc gag agg cgg cag gac att gtt ctg agt | 1757 |
| Arg Val Gly Arg Glu Asp Gly Glu Arg Arg Gln Asp Ile Val Leu Ser | |
| 517 522 527 532 | |
| ggg cac ttc atc aag gag gag cac tgc gtc ttc cgg agc gac tcc agg | 1805 |
| Gly His Phe Ile Lys Glu Glu His Cys Val Phe Arg Ser Asp Ser Arg | |
| 533 538 543 548 | |
| gga ggc agc gaa gct gtg gtg acc ttg gag ccc tgt gag ggg gca gac | 1853 |
| Gly Gly Ser Glu Ala Val Val Thr Leu Glu Pro Cys Glu Gly Ala Asp | |
| 549 554 559 564 | |
| acc tac gtc aat ggc aag aaa gtc aca gag ccc agc atc ctg cgt tca | 1901 |
| Thr Tyr Val Asn Gly Lys Lys Val Thr Glu Pro Ser Ile Leu Arg Ser | |
| 565 570 575 580 | |
| gga aac cgc atc atc atg ggt aag agc cat gtg ttc cgg ttc acc cac | 1949 |
| Gly Asn Arg Ile Ile Met Gly Lys Ser His Val Phe Arg Phe Thr His | |
| 581 586 591 596 | |
| ccc gag cag gcc cgg cag gag cgt gag cgc acg cct tgt gcg gag acg | 1997 |
| Pro Glu Gln Ala Arg Gln Glu Arg Glu Arg Thr Pro Cys Ala Glu Thr | |
| 597 602 607 612 | |
| cca gct gag cct gtg gac tgg gcc ttc gcc cag cgt gag ctg ctg gag | 2045 |
| Pro Ala Glu Pro Val Asp Trp Ala Phe Ala Gln Arg Glu Leu Leu Glu | |
| 613 618 623 628 | |
| aag cag ggc atc gac atg aag cag gag atg gag cag agg ctc cag gaa | 2093 |
| Lys Gln Gly Ile Asp Met Lys Gln Glu Met Glu Gln Arg Leu Gln Glu | |
| 629 634 639 644 | |
| ctg gag gac cag tac cgc cgc gag cgg gag gag gcc acc tac ctg ctg | 2141 |
| Leu Glu Asp Gln Tyr Arg Arg Glu Arg Glu Glu Ala Thr Tyr Leu Leu | |
| 645 650 655 660 | |
| gag cag cag cgg ctg gac tat gag agc aag ctg gag gct ctg cag aag | 2189 |
| Glu Gln Gln Arg Leu Asp Tyr Glu Ser Lys Leu Glu Ala Leu Gln Lys | |
| 661 666 671 676 | |
| cag atg gac tcc agg tac tac ccg gag gtg aac gag gag gag gag gag | 2237 |
| Gln Met Asp Ser Arg Tyr Tyr Pro Glu Val Asn Glu Glu Glu Glu Glu | |
| 677 682 687 692 | |
| ccc gag gat gaa gtc cag tgg aca gag cgg gag tgt gag ctg gcg ctc | 2285 |
| Pro Glu Asp Glu Val Gln Trp Thr Glu Arg Glu Cys Glu Leu Ala Leu | |
| 693 698 703 708 | |

| | |
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| tgg gcc ttc cgg aag tgg aag tgg tac cag ttc acg tct ctg cgg gac Trp Ala Phe Arg Lys Trp Lys Trp Tyr Gln Phe Thr Ser Leu Arg Asp 709 714 719 724 | 2333 |
| ctg ctg tgg ggc aac gcc atc ttc ctc aag gag gcc aat gcc atc agc Leu Leu Trp Gly Asn Ala Ile Phe Leu Lys Glu Ala Asn Ala Ile Ser 725 730 735 740 | 2381 |
| gtg gag ctg aaa aag aag gta caa ttc cag ttt gtc ctc ctg acg gac Val Glu Leu Lys Lys Lys Val Gln Phe Gln Phe Val Leu Leu Thr Asp 741 746 751 756 | 2429 |
| aca ctc tac tcc cct ctg cca ccc gac ctg ctg ccc cca gag gcc gcc Thr Leu Tyr Ser Pro Leu Pro Pro Asp Leu Leu Pro Pro Glu Ala Ala 757 762 767 772 | 2477 |
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| gtc cag gac cag aag aac ggg gcc acc cac tac tgg acg ctg gag aag Val Gln Asp Gln Lys Asn Gly Ala Thr His Tyr Trp Thr Leu Glu Lys 789 794 799 804 | 2573 |
| ctc agg cag cgt ctg gac ctg atg cgg gag atg tac gac cgc gct gca Leu Arg Gln Arg Leu Asp Leu Met Arg Glu Met Tyr Asp Arg Ala Ala 805 810 815 820 | 2621 |
| gag gtg ccc tcc agt gtc atc gag gac tgt gac aac gtg gtg acc ggc Glu Val Pro Ser Ser Val Ile Glu Asp Cys Asp Asn Val Val Thr Gly 821 826 831 836 | 2669 |
| gga gac ccc ttc tat gac cgc ttc ccc tgg ttc cgg ctg gtg ggc agg Gly Asp Pro Phe Tyr Asp Arg Phe Pro Trp Phe Arg Leu Val Gly Arg 837 842 847 852 | 2717 |
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| cgt gtg gca atc gtc agc gag aag ggc gag gtg aag ggc ttc ctc cgc Arg Val Ala Ile Val Ser Glu Lys Gly Glu Val Lys Gly Phe Leu Arg 869 874 879 884 | 2813 |
| gtg gcc gtc cag ggc cat ctc agc cga tga a gaggcccctg attatggctc Val Ala Val Gln Gly His Leu Ser Arg * 885 890 | 2864 |
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Met Gln Tyr Ser His His Cys Glu His
1 5

ctt tta gag aga ctg aac aaa cag cgg gaa gca ggt ttt ctc tgt gac 161
Leu Leu Glu Arg Leu Asn Lys Gln Arg Glu Ala Gly Phe Leu Cys Asp
10 15 20 25

tgt acc ata gtg att ggg gaa ttc cag ttt aaa gct cat agg aat gtg 209
Cys Thr Ile Val Ile Gly Glu Phe Gln Phe Lys Ala His Arg Asn Val
26 31 36 41

ctg gcc tcc ttt agt gag tat ttt ggt gcg atc tac aga agc act tct 257
Leu Ala Ser Phe Ser Glu Tyr Phe Gly Ala Ile Tyr Arg Ser Thr Ser
42 47 52 57

gag aac aat gtc ttt ctt gat cag agt cag gtg aag gct gat gga ttt 305
Glu Asn Asn Val Phe Leu Asp Gln Ser Gln Val Lys Ala Asp Gly Phe
58 63 68 73

cag aaa ctg ttg gag ttt ata tac aca gga act tta aat ctt gac agt 353
Gln Lys Leu Leu Glu Phe Ile Tyr Thr Gly Thr Leu Asn Leu Asp Ser
74 79 84 89

tgg aat gtt aaa gaa att cat cag gct gct gac tat ctc aaa gtg gaa 401
Trp Asn Val Lys Glu Ile His Gln Ala Ala Asp Tyr Leu Lys Val Glu
90 95 100 105

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Glu Val Val Thr Lys Cys Lys Ile Lys Met Glu Asp Phe Ala Phe Ile
106 111 116 121

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Ala Asn Pro Ser Ser Thr Glu Ile Ser Ser Ile Thr Gly Asn Ile Glu
122 127 132 137

ttg aat caa cag act tgt ctt ctt act ctg cga gat tat aat aat cga 545
Leu Asn Gln Gln Thr Cys Leu Leu Thr Leu Arg Asp Tyr Asn Asn Arg
138 143 148 153

| | |
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| gag aaa tca gaa gta tct aca gat ttg att cag gca aat cct aaa caa Glu Lys Ser Glu Val Ser Thr Asp Leu Ile Gln Ala Asn Pro Lys Gln 154 159 164 169 | 593 |
| ggc gcg tta gcg aaa aag tca tct caa acg aaa aag aag aag aag gct Gly Ala Leu Ala Lys Lys Ser Ser Gln Thr Lys Lys Lys Lys Lys Ala 170 175 180 185 | 641 |
| ttc aac tcc ccg aaa aca ggg cag aat aaa aca gtg caa tat ccc agt Phe Asn Ser Pro Lys Thr Gly Gln Asn Lys Thr Val Gln Tyr Pro Ser 186 191 196 201 | 689 |
| gac atc tta gag aat gca tct gtt gaa tta ttc cta gat gca aat aaa Asp Ile Leu Glu Asn Ala Ser Val Glu Leu Phe Leu Asp Ala Asn Lys 202 207 212 217 | 737 |
| ctg ccc aca cct gta gta gaa caa gtt gca caa ata aat gat aat tca Leu Pro Thr Pro Val Val Glu Gln Val Ala Gln Ile Asn Asp Asn Ser 218 223 228 233 | 785 |
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| aac tgt gct ctg aaa gaa cac tct atg tct aat ata gcc agc gtc aag Asn Cys Ala Leu Lys Glu His Ser Met Ser Asn Ile Ala Ser Val Lys 266 271 276 281 | 929 |
| agt cct tat gag gcg gag aac tcc ggg gaa gag ctg gat cag agg tat Ser Pro Tyr Glu Ala Glu Asn Ser Gly Glu Glu Leu Asp Gln Arg Tyr 282 287 292 297 | 977 |
| tcc aag gcc aag cca atg tgt aac aca tgt ggg aaa gtg ttt tca gaa Ser Lys Ala Lys Pro Met Cys Asn Thr Cys Gly Lys Val Phe Ser Glu 298 303 308 313 | 1025 |
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| ttg tgt gat aaa gga ttt gct cag aaa tgt cag cta gtc ttc cat agt Leu Cys Asp Lys Gly Phe Ala Gln Lys Cys Gln Leu Val Phe His Ser 362 367 372 377 | 1217 |
| cgc atg cat cat ggt gaa gaa aaa ccc tat aaa tgt gat gta tgc aac | 1265 |

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|---|------|
| Arg Met His His Gly Glu Glu Lys Pro Tyr Lys Cys Asp Val Cys Asn | |
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| Leu Gln Phe Ala Thr Ser Ser Asn Leu Lys Ile His Ala Arg Lys His | |
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| agt gga gag aag cca tat gtc tgt gat agg tgt gga cag aga ttt gct | 1361 |
| Ser Gly Glu Lys Pro Tyr Val Cys Asp Arg Cys Gly Gln Arg Phe Ala | |
| 410 415 420 425 | |
| caa gcc agc aca ctg acc tat cat gtc cgt agg gca tta ctg gga gaa | 1409 |
| Gln Ala Ser Thr Leu Thr Tyr His Val Arg Arg Ala Leu Leu Gly Glu | |
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| aag cct tat gta tgt gat acc tgt ggg aag gca ttt gct gtc tct agt | 1457 |
| Lys Pro Tyr Val Cys Asp Thr Cys Gly Lys Ala Phe Ala Val Ser Ser | |
| 442 447 452 457 | |
| tct ctt atc act cat tct cga aaa cat aca ggt gaa aaa cca tac ata | 1505 |
| Ser Leu Ile Thr His Ser Arg Lys His Thr Gly Glu Lys Pro Tyr Ile | |
| 458 463 468 473 | |
| tgt ggt att tgt ggg aaa agt ttt att tcc tca gga gag ctc aac aaa | 1553 |
| Cys Gly Ile Cys Gly Lys Ser Phe Ile Ser Ser Gly Glu Leu Asn Lys | |
| 474 479 484 489 | |
| cac ttt cgg tcc cat aca gga gaa aga cca ttt atc tgc gaa tta tgt | 1601 |
| His Phe Arg Ser His Thr Gly Glu Arg Pro Phe Ile Cys Glu Leu Cys | |
| 490 495 500 505 | |
| gga aat tct tac aca gat att aaa aat tta aag aag cac aaa aca aaa | 1649 |
| Gly Asn Ser Tyr Thr Asp Ile Lys Asn Leu Lys Lys His Lys Thr Lys | |
| 506 511 516 521 | |
| gtc cat tct ggt gca gat aaa act cta gac tcc agt gca gag gat cat | 1697 |
| Val His Ser Gly Ala Asp Lys Thr Leu Asp Ser Ser Ala Glu Asp His | |
| 522 527 532 537 | |
| act ttg agt gaa cag gat tcc ata caa aaa agt cct tta tca gaa act | 1745 |
| Thr Leu Ser Glu Gln Asp Ser Ile Gln Lys Ser Pro Leu Ser Glu Thr | |
| 538 543 548 553 | |
| atg gat gtg aag cct tct gat atg act tta cca tta gct ctt cca ctt | 1793 |
| Met Asp Val Lys Pro Ser Asp Met Thr Leu Pro Leu Ala Leu Pro Leu | |
| 554 559 564 569 | |
| ggg act gag gac cat cac atg ctt ctg cct gtc acg gat act cag tct | 1841 |
| Gly Thr Glu Asp His His Met Leu Leu Pro Val Thr Asp Thr Gln Ser | |
| 570 575 580 585 | |
| cct aca tca gat aca ttg ttg agg tca act gtg aat ggg tat tca gaa | 1889 |
| Pro Thr Ser Asp Thr Leu Leu Arg Ser Thr Val Asn Gly Tyr Ser Glu | |
| 586 591 596 601 | |
| cca cag ttg att ttt tta caa caa tta tac tga ctttgtaa ggaatatgga | 1940 |
| Pro Gln Leu Ile Phe Leu Gln Gln Leu Tyr * | |

602

607

612

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tgt gct gaa ccc tct gag ccc tct gcc cca ctg ccc gcc ggg gtc cca 165
 Cys Ala Glu Pro Ser Glu Pro Ser Ala Pro Leu Pro Ala Gly Val Pro

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| Pro Leu Glu Asp Phe | Glu Val Leu Asp Gly Val Glu Asp Ala Gln Gly | | | |
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| Glu Glu Glu Glu Glu | Glu Glu Glu Glu Glu Glu Asp Asp Leu Ser Glu | | | |
| 36 | 41 | 46 | 51 | |
| ctg cca ccg ttg gag | gag act ggg gag ggc cgg cgg ggc gcg gag gag | | | 309 |
| Leu Pro Pro Leu Glu | Glu Thr Gly Glu Gly Arg Arg Gly Ala Glu Glu | | | |
| 52 | 57 | 62 | 67 | |
| gag gat ctg ggg gaa | gag gag gag gag ggc cag gcg cac ctg gag gac | | | 357 |
| Glu Asp Leu Gly Glu | Glu Glu Glu Glu Gly Gln Ala His Leu Glu Asp | | | |
| 68 | 73 | 78 | 83 | |
| tgg agg ggg cag ctc | agt gag ctt ctg aac gac ttt gag gag agg ctt | | | 405 |
| Trp Arg Gly Gln Leu | Ser Glu Leu Leu Asn Asp Phe Glu Glu Arg Leu | | | |
| 84 | 89 | 94 | 99 | |
| gaa gac cag gaa cgc | ctg aaa ccc gaa gga caa aga gaa cac tcc gag | | | 453 |
| Glu Asp Gln Glu Arg | Leu Lys Pro Glu Gly Gln Arg Glu His Ser Glu | | | |
| 100 | 105 | 110 | 115 | |
| gag cca ggt att tgc | gag gag cag aac cca gag gcc gag cgg cga aga | | | 501 |
| Glu Pro Gly Ile Cys | Glu Glu Gln Asn Pro Glu Ala Glu Arg Arg Arg | | | |
| 116 | 121 | 126 | 131 | |
| gag cag cag gga agg | agc ggg gat ttc cag ggg gcc gat cgt cct ggg | | | 549 |
| Glu Gln Gln Gly Arg | Ser Gly Asp Phe Gln Gly Ala Asp Arg Pro Gly | | | |
| 132 | 137 | 142 | 147 | |
| ccc gag gaa aag aga | gaa gaa ggg gac acg gag cct ctc ctg aaa caa | | | 597 |
| Pro Glu Glu Lys Arg | Glu Glu Gly Asp Thr Glu Pro Leu Leu Lys Gln | | | |
| 148 | 153 | 158 | 163 | |
| gag ggg ccg gtg gaa | gcc gcg cag cct ccg gtg gag agg aaa gaa gcc | | | 645 |
| Glu Gly Pro Val Glu | Ala Ala Gln Pro Pro Val Glu Arg Lys Glu Ala | | | |
| 164 | 169 | 174 | 179 | |
| gcc gcc ctt gaa caa | ggc cgc aag gtg gag gag ctg cgg tgg cag gag | | | 693 |
| Ala Ala Leu Glu Gln | Gly Arg Lys Val Glu Glu Leu Arg Trp Gln Glu | | | |
| 180 | 185 | 190 | 195 | |
| gtg gac gag aga cag | acc atg ccc cgg ccc tac acg ttc cag gtg tcc | | | 741 |
| Val Asp Glu Arg Gln | Thr Met Pro Arg Pro Tyr Thr Phe Gln Val Ser | | | |
| 196 | 201 | 206 | 211 | |
| tcc gga ggg aag cag | att ctc ttt ccc aaa gtc aac ctg agc ccc gtg | | | 789 |
| Ser Gly Gly Lys Gln | Ile Leu Phe Pro Lys Val Asn Leu Ser Pro Val | | | |
| 212 | 217 | 222 | 227 | |
| acg ccc gca aag gac | acg ggg ctc acc gct gct ccc cag gaa cca aag | | | 837 |
| Thr Pro Ala Lys Asp | Thr Gly Leu Thr Ala Ala Pro Gln Glu Pro Lys | | | |
| 228 | 233 | 238 | 243 | |

| | |
|---|------|
| ctt gtc cca agc ctt cct tac cct ccg cag aaa gtg gtg gcc cac aca | 1557 |
| Leu Val Pro Ser Leu Pro Tyr Pro Pro Gln Lys Val Val Ala His Thr | |
| 468 473 478 483 | |
| gag ttc acg acc tcg tcg gac agc gag act gca aac ggg ata gca aag | 1605 |
| Glu Phe Thr Thr Ser Ser Asp Ser Glu Thr Ala Asn Gly Ile Ala Lys | |
| 484 489 494 499 | |
| cca gac cct gtg atg cca ggt gga gag gaa aaa gcc tca ccg ttt gga | 1653 |
| Pro Asp Pro Val Met Pro Gly Gly Glu Glu Lys Ala Ser Pro Phe Gly | |
| 500 505 510 515 | |
| ata aaa ttg aga agg acc aac tat tcc ttg cgc ttc aac tgc gac caa | 1701 |
| Ile Lys Leu Arg Arg Thr Asn Tyr Ser Leu Arg Phe Asn Cys Asp Gln | |
| 516 521 526 531 | |
| cag gca gaa cag aag aag aag aag agg cac agc agc acc gga gac agc | 1749 |
| Gln Ala Glu Gln Lys Lys Lys Lys Arg His Ser Ser Thr Gly Asp Ser | |
| 532 537 542 547 | |
| gcg gat gca ggg ccg cct gca gcg ggg agc gct cgt gga gag aaa gag | 1797 |
| Ala Asp Ala Gly Pro Pro Ala Ala Gly Ser Ala Arg Gly Glu Lys Glu | |
| 548 553 558 563 | |
| atg gag ggt gtg gcc ctg aag cat ggt cca tcc ctg ccc caa gag cgg | 1845 |
| Met Glu Gly Val Ala Leu Lys His Gly Pro Ser Leu Pro Gln Glu Arg | |
| 564 569 574 579 | |
| aag caa gcc cct tcc acc cgg agg gac tcc gct gaa cct tcc agc agc | 1893 |
| Lys Gln Ala Pro Ser Thr Arg Arg Asp Ser Ala Glu Pro Ser Ser Ser | |
| 580 585 590 595 | |
| cgc tct gtt cct gtg gcc cac cct ggg cct cca ccg gcc agc agc cag | 1941 |
| Arg Ser Val Pro Val Ala His Pro Gly Pro Pro Pro Ala Ser Ser Gln | |
| 596 601 606 611 | |
| acc ccg gct ccg gag cac gac aag gca gca aac aaa atg cca ctg gca | 1989 |
| Thr Pro Ala Pro Glu His Asp Lys Ala Ala Asn Lys Met Pro Leu Ala | |
| 612 617 622 627 | |
| caa aag cca gca ctg gct ccc aag ccc acc agt cag acc cca cca gca | 2037 |
| Gln Lys Pro Ala Leu Ala Pro Lys Pro Thr Ser Gln Thr Pro Pro Ala | |
| 628 633 638 643 | |
| tcc cca ctt tcc aaa ctg agc agg ccc tac ttg gta gag ctg ctg tct | 2085 |
| Ser Pro Leu Ser Lys Leu Ser Arg Pro Tyr Leu Val Glu Leu Leu Ser | |
| 644 649 654 659 | |
| cgc cga gcg ggg agg ccg gac cca gag cca agt gag ccg tcc aag gag | 2133 |
| Arg Arg Ala Gly Arg Pro Asp Pro Glu Pro Ser Glu Pro Ser Lys Glu | |
| 660 665 670 675 | |
| gac cag gag agc agt gac cgc cgg cca ccc tcg ccc cca ggc ccc gag | 2181 |
| Asp Gln Glu Ser Ser Asp Arg Arg Pro Pro Ser Pro Pro Gly Pro Glu | |
| 676 681 686 691 | |
| gaa agg aag gga cag aag agg gac gag gag gaa gag gcg aca gag agg | 2229 |

| Glu | Arg | Lys | Gly | Gln | Lys | Arg | Asp | Glu | Glu | Ala | Thr | Glu | Arg | | |
|---|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|--|
| 692 | | | | | 697 | | | | | 702 | | | 707 | | |
| aaa cct gct tcc cca cct ctg cct gcc act cag caa gag aaa cct tct | 2277 | | | | | | | | | | | | | | |
| Lys Pro Ala Ser Pro Pro Leu Pro Ala Thr Gln Gln Glu Lys Pro Ser | | | | | | | | | | | | | | | |
| 708 713 718 723 | | | | | | | | | | | | | | | |
| caa aca ccc gag gcc ggg agg aaa gag aag ccg atg ctt cag agc aga | 2325 | | | | | | | | | | | | | | |
| Gln Thr Pro Glu Ala Gly Arg Lys Glu Lys Pro Met Leu Gln Ser Arg | | | | | | | | | | | | | | | |
| 724 729 734 739 | | | | | | | | | | | | | | | |
| cac tcc tta gat ggc tcc aaa ctt aca gag aaa gtg gaa act gct cag | 2373 | | | | | | | | | | | | | | |
| His Ser Leu Asp Gly Ser Lys Leu Thr Glu Lys Val Glu Thr Ala Gln | | | | | | | | | | | | | | | |
| 740 745 750 755 | | | | | | | | | | | | | | | |
| ccg ctg tgg ata acg tta gca ctg caa aag caa aag ggg ttt cgg gag | 2421 | | | | | | | | | | | | | | |
| Pro Leu Trp Ile Thr Leu Ala Leu Gln Lys Gln Lys Gly Phe Arg Glu | | | | | | | | | | | | | | | |
| 756 761 766 771 | | | | | | | | | | | | | | | |
| cag cag gcg acg cgg gag gag aga aag caa gcc aga gag gcc aaa cag | 2469 | | | | | | | | | | | | | | |
| Gln Gln Ala Thr Arg Glu Glu Arg Lys Gln Ala Arg Glu Ala Lys Gln | | | | | | | | | | | | | | | |
| 772 777 782 787 | | | | | | | | | | | | | | | |
| gca gaa aag ctc tcc aaa gaa aat gtc agt gtc agc gtg cag cct gga | 2517 | | | | | | | | | | | | | | |
| Ala Glu Lys Leu Ser Lys Glu Asn Val Ser Val Ser Val Gln Pro Gly | | | | | | | | | | | | | | | |
| 788 793 798 803 | | | | | | | | | | | | | | | |
| agc agc agt gtc agc aga gca ggt tcc ctg cac aag tcc act gct ctg | 2565 | | | | | | | | | | | | | | |
| Ser Ser Ser Val Ser Arg Ala Gly Ser Leu His Lys Ser Thr Ala Leu | | | | | | | | | | | | | | | |
| 804 809 814 819 | | | | | | | | | | | | | | | |
| cca gaa gag aag aga ccc gag act gca gtg tcc agg ctt gag cgc aga | 2613 | | | | | | | | | | | | | | |
| Pro Glu Glu Lys Arg Pro Glu Thr Ala Val Ser Arg Leu Glu Arg Arg | | | | | | | | | | | | | | | |
| 820 825 830 835 | | | | | | | | | | | | | | | |
| gaa cag ctg aaa aag gcc aat act ctt cct acg tct gtg aca gtg gag | 2661 | | | | | | | | | | | | | | |
| Glu Gln Leu Lys Lys Ala Asn Thr Leu Pro Thr Ser Val Thr Val Glu | | | | | | | | | | | | | | | |
| 836 841 846 851 | | | | | | | | | | | | | | | |
| atc tcc gac tcg gct ccc cca gcg ccg ctg gta aaa gaa gtc acc aag | 2709 | | | | | | | | | | | | | | |
| Ile Ser Asp Ser Ala Pro Pro Ala Pro Leu Val Lys Glu Val Thr Lys | | | | | | | | | | | | | | | |
| 852 857 862 867 | | | | | | | | | | | | | | | |
| agg ttt tcc acc ccg gat gct gcc ccc gtg tca aca gaa cca gcc tgg | 2757 | | | | | | | | | | | | | | |
| Arg Phe Ser Thr Pro Asp Ala Ala Pro Val Ser Thr Glu Pro Ala Trp | | | | | | | | | | | | | | | |
| 868 873 878 883 | | | | | | | | | | | | | | | |
| ctg gct ttg gcc aaa agg aaa gca aag gct tgg agc gac tgt cca cag | 2805 | | | | | | | | | | | | | | |
| Leu Ala Leu Ala Lys Arg Lys Ala Lys Ala Trp Ser Asp Cys Pro Gln | | | | | | | | | | | | | | | |
| 884 889 894 899 | | | | | | | | | | | | | | | |
| att att aag taa | 2817 | | | | | | | | | | | | | | |
| Ile Ile Lys * | | | | | | | | | | | | | | | |
| 900 / | | | | | | | | | | | | | | | |

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tgt ttg cac aag agc cga att gca gat ttg cag gat gtc ctg aag gag  103
Cys Leu His Lys Ser Arg Ile Ala Asp Leu Gln Asp Val Leu Lys Glu
  3                               8                               13                               18

ccc tca att gca ttg gaa aag ctg cgg gaa ctc agc ttt agt ggc atc  151
Pro Ser Ile Ala Leu Glu Lys Leu Arg Glu Leu Ser Phe Ser Gly Ile
  19                               24                               29                               34

ccc tgt gag ggc gga ctg cgg tgc ctc tgc tgg aag att ctc ttg aac  199
Pro Cys Glu Gly Gly Leu Arg Cys Leu Cys Trp Lys Ile Leu Leu Asn
  35                               40                               45                               50

tac ctt ccc ttg gag agg gcc tca tgg acc tcc atc ctg gcc aag cag  247
Tyr Leu Pro Leu Glu Arg Ala Ser Trp Thr Ser Ile Leu Ala Lys Gln
  51                               56                               61                               66

agg gag ctg tat gcc cag ttc ctg agg gaa atg atc atc cag cct ggc  295
Arg Glu Leu Tyr Ala Gln Phe Leu Arg Glu Met Ile Ile Gln Pro Gly
  67                               72                               77                               82

att gcc aag gcc aac atg ggt gtg tcc agg gag gat gtg act ttt gag  343
Ile Ala Lys Ala Asn Met Gly Val Ser Arg Glu Asp Val Thr Phe Glu
  83                               88                               93                               98

gac cat tca ctc aac ccc aac cct gac agc cgg tgg aac acg tac ttc  391
Asp His Ser Leu Asn Pro Asn Pro Asp Ser Arg Trp Asn Thr Tyr Phe
  99                               104                               109                               114

aag gac aac gag gtg ctg ctg cag atc gac aaa gat gtc cgg tag g  437
Lys Asp Asn Glu Val Leu Leu Gln Ile Asp Lys Asp Val Arg *
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| tggcagcccc aagcctggac accttttctt gattctctag gcgggggctg cctgcgtcca | 180 |
| agcagctggg ttgcagcgtt ccaacgctgg gagggagttc ccttacctgg ggtccagtct | 240 |
| gtaaagttgt cgccgctttc tagggacccc gcccaccgg ctgggactct tccatgcagt | 300 |
| tgaaactggg tgacaacat taacctgggt tgcaactaca ggtggcactg gaagcagact | 360 |
| ggttcctgga catgcccggg ggaaggaggg gccctagtcg gcaacagcta agccgttcag | 420 |
| ctttaccttc tttgcagact ttggttggtg gaggctgtgg caatggaaca ggcttgagaa | 480 |
| acaggaatgg tagtgctatt ggccttcag tcccacctat cacagcctta atcaccacag | 540 |
| gtcctgttcg tcattgcaa attcctgact tgctgtgga tgggagccta ctctttgaat | 600 |
| tccttttttt catctacctg ttggttgctc ttttcattca gtacatcaac atttataaaa | 660 |
| cagtgtgggt gtatccttac aatcatcctg cttcttgtac atcactgaat tttcatctca | 720 |
| ttgattatca tctggcagca ttcacacag tgatgcttgc gaggaggctt gtatgggctc | 780 |
| tcctctcaga ggctactaag gcagggtgcag catcaatgat tcactacatg gttctgatat | 840 |
| cagctcgctt ggtactactc actttgtgtg gatgggtact ttgttggacc ctcgtcaatc | 900 |
| tctttcgaag ccattcagtc ctcaatctcc ttttccttgg ctaccggtt ggtgtttatg | 960 |
| ttcctctttg ctgttttcat caagatagta gagcacatct tcttctcaca gactacaact | 1020 |
| atgtggttca gcacgaggca gtagaggaaa gtgcctcgac tgtgggaggc ttggccaaat | 1080 |
| ccaaagactt tctctccttg ttgctggagt cgctaaaaga acagttaat aatgccacac | 1140 |
| ccatccccac ccacagttgt cccctatctc cagacctcat tcgcaatgaa gtagaatgtc | 1200 |
| tgaaagcaga tttcaaccac agaataagg aggttctctt caactccctc ttcagtgcct | 1260 |
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| gcttcctgga tttgtgtgtg aattacataa actgggtatt tcttgtttaa tccccctttt | 1380 |
| ctctgtctcc cctttggcag cctggatggg ggagttcggc tgcactctgga gtgcactaat | 1440 |
| accgctcctg gttggcggat aggtatttcc atatatgtga tgcacccgtg gtgggtccct | 1500 |
| ctttttttct tttttttttt tttttttaag tatttttagt ttctggggag aatcaaaatg | 1560 |

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| taagcttgcg gccgccaact tttttttttt ttctgccctt tcccttgcg gtcgcacccc | 60 |
| gcccaggccc ctctcccgcc ccaggtctct cagtcttttt tctcagggcg tgtagcttcc | 120 |
| tgcacacccg gaagcagatc gcgcggggaa aagatcacag cgctgcgcgt cagtttccgt | 180 |
| ctacctggac taaacatttg cttcgccccg tctgcctgaa tcgaacgtgc acttggcagt | 240 |
| cttcccttgt ccatacccg ttcctgggga tcgctacgga ccttaaaata ccagcaacag | 300 |
| cccttcgcc ccaaggtctt gctctgtcag actagagtac agtgccatga tctccgctca | 360 |
| ctgcagcctc aacctcctgg gctcaagcag tctttctgcc tcagagtgtt gggattacag | 420 |
| acgggagcca ccacgccagg cctacgagat ttgacttgta aagaattaat tatattgact | 480 |
| gagagagaag cccagaagag gaagaagagg aaagaaaagg agtcaggg atg gct ctt | 537 |
| Met Ala Leu | |
| 1 | |
| aca cag gga cct ttg aca ttc agg gat gta gcc ata gaa ttc tct cag | 585 |
| Thr Gln Gly Pro Leu Thr Phe Arg Asp Val Ala Ile Glu Phe Ser Gln | |
| 4 9 14 19 | |
| gag gag tgg aaa tcc ctg gac cct gtg cag aaa gct ttg tac tgg gat | 633 |
| Glu Glu Trp Lys Ser Leu Asp Pro Val Gln Lys Ala Leu Tyr Trp Asp | |
| 20 25 30 35 | |
| gtg atg ttg gag aac tac agg aac ctg gtc ttc ctg ggt aag gat aat | 681 |
| Val Met Leu Glu Asn Tyr Arg Asn Leu Val Phe Leu Gly Lys Asp Asn | |
| 36 41 46 51 | |
| ttt gct cta gaa gtt aag atc tgc cct cgt gta ttt ttg tat ttt ctc | 729 |
| Phe Ala Leu Glu Val Lys Ile Cys Pro Arg Val Phe Leu Tyr Phe Leu | |
| 52 57 62 67 | |
| tgt tgt ctt tct tgg gag ccc ttc cat tat ttg act gag act gaa gcc | 777 |
| Cys Cys Leu Ser Trp Glu Pro Phe His Tyr Leu Thr Glu Thr Glu Ala | |
| 68 73 78 83 | |
| ttg ttg act cac aaa taa aaagcttcat aatgctgaaa aaaaaaaaaa a | 826 |
| Leu Leu Thr His Lys * | |
| 84 89 | |

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Met Arg Lys His Leu Ser Trp Trp Trp Leu Ala Thr Val Cys Met
1 5 10

ctg ctc ttc agc cac ctc tct gcg gtc cag acg agg ggc atc aag cac 157
Leu Leu Phe Ser His Leu Ser Ala Val Gln Thr Arg Gly Ile Lys His
16 21 26 31

aga atc aag tgg aac cgg aag gcc ctg ccc agc act gcc cag atc act 205
Arg Ile Lys Trp Asn Arg Lys Ala Leu Pro Ser Thr Ala Gln Ile Thr
32 37 42 47

gag gcc cag gtg gct gag aac cgc ccg gga gcc ttc atc aag caa ggc 253
Glu Ala Gln Val Ala Glu Asn Arg Pro Gly Ala Phe Ile Lys Gln Gly
48 53 58 63

cgc aag ctc gac att gac ttc gga gcc gag ggc aac agg tac tac gag 301
Arg Lys Leu Asp Ile Asp Phe Gly Ala Glu Gly Asn Arg Tyr Tyr Glu
64 69 74 79

gcc aac tac tgg cag ttc ccc gat ggc atc cac tac aac ggc tgc tct 349
Ala Asn Tyr Trp Gln Phe Pro Asp Gly Ile His Tyr Asn Gly Cys Ser
80 85 90 95

gag gct aat gtg acc aag gag gca ttt gtc acc ggc tgc atc aat gcc 397
Glu Ala Asn Val Thr Lys Glu Ala Phe Val Thr Gly Cys Ile Asn Ala
96 101 106 111

acc cag gcg gcg aac cag ggg gag ttc cag aag cca gac aac aag ctc 445
Thr Gln Ala Ala Asn Gln Gly Glu Phe Gln Lys Pro Asp Asn Lys Leu
112 117 122 127

cac cag cag gtg ctc tgg cgg ctg gtc cag gag ctc tgc tcc ctc aag 493
His Gln Gln Val Leu Trp Arg Leu Val Gln Glu Leu Cys Ser Leu Lys
128 133 138 143

cat tgc gag ttt tgg ttg gag agg ggc gca gga ctt cgg gtc acc atg 541
His Cys Glu Phe Trp Leu Glu Arg Gly Ala Gly Leu Arg Val Thr Met
144 149 154 159

cac cag cca gtg ctc ctc tgc ctt ctg gct ttg atc tgg ctc acg gtg 589
His Gln Pro Val Leu Leu Cys Leu Leu Ala Leu Ile Trp Leu Thr Val
160 165 170 175

aaa taa gcttgccagg aggctggcag tacagagtgc agcagcgagc aaatcctggc 645
Lys *
176

aagtgacca gctcttctcc cccaaacca cgcgtgttct gaaagtgcc atgagcggcg 705

atgcactctc actgcaaata cgcgtctcac gtatgcgccc tggtatgtgc ctgcgttctg 765/

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| gamma | float | 0.001 | delta | float | 0.001 |
| epsilon | float | 0.001 | zeta | float | 0.001 |
| eta | float | 0.001 | theta | float | 0.001 |
| iota | float | 0.001 | kappa | float | 0.001 |
| lambda | float | 0.001 | mu | float | 0.001 |
| nu | float | 0.001 | xi | float | 0.001 |
| omicron | float | 0.001 | pi | float | 0.001 |
| rho | float | 0.001 | sigma | float | 0.001 |
| tau | float | 0.001 | upsilon | float | 0.001 |
| phi | float | 0.001 | chi | float | 0.001 |
| psi | float | 0.001 | omega | float | 0.001 |

| name | type | value | name | type | value |
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| 003 | int | 3 | 003 | int | 3 |
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| 005 | int | 5 | 005 | int | 5 |
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| 068 | int | 68 | 068 | int | 68 |
| 069 | int | 69 | 069 | int | 69 |
| 070 | int | 70 | 070 | int | 70 |
| 071 | int | 71 | 071 | int | 71 |
| 072 | int | 72 | 072 | int | 72 |
| 073 | int | 73 | 073 | int | 73 |
| 074 | int | 74 | 074 | | |

| name | type | value | name | type | value |
|------|------|-------|------|------|-------|
| 001 | int | 0 | 001 | int | 0 |
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| 02 | int | 2 | 02 | int | 2 |
| 03 | int | 3 | 03 | int | 3 |
| 04 | int | 4 | 04 | int | 4 |
| 05 | int | 5 | 05 | int | 5 |
| 06 | int | 6 | 06 | int | 6 |
| 07 | int | 7 | 07 | int | 7 |
| 08 | int | 8 | 08 | int | 8 |
| 09 | int | 9 | 09 | int | 9 |
| 10 | int | 10 | 10 | int | 10 |
| 11 | int | 11 | 11 | int | 11 |
| 12 | int | 12 | 12 | int | 12 |
| 13 | int | 13 | 13 | int | 13 |
| 14 | int | 14 | 14 | int | 14 |
| 15 | int | 15 | 15 | int | 15 |
| 16 | int | 16 | 16 | int | 16 |
| 17 | int | 17 | 17 | int | 17 |
| 18 | int | 18 | 18 | int | 18 |
| 19 | int | 19 | 19 | int | 19 |
| 20 | int | 20 | 20 | int | 20 |
| 21 | int | 21 | 21 | int | 21 |
| 22 | int | 22 | 22 | int | 22 |
| 23 | int | 23 | 23 | int | 23 |
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| 27 | int | 27 | 27 | int | 27 |
| 28 | int | 28 | 28 | int | 28 |
| 29 | int | 29 | 29 | int | 29 |
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| 31 | int | 31 | 31 | int | 31 |
| 32 | int | 32 | 32 | int | 32 |
| 33 | int | 33 | 33 | int | 33 |
| 34 | int | 34 | 34 | int | 34 |
| 35 | int | 35 | 35 | int | 35 |
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| 37 | int | 37 | 37 | int | 37 |
| 38 | int | 38 | 38 | int | 38 |
| 39 | int | 39 | 39 | int | 39 |
| 40 | int | 40 | 40 | int | 40 |
| 41 | int | 41 | 41 | int | 41 |
| 42 | int | 42 | 42 | int | 42 |
| 43 | int | 43 | 43 | int | 43 |
| 44 | int | 44 | 44 | int | 44 |
| 45 | int | 45 | 45 | int | 45 |
| 46 | int | 46 | 46 | int | 46 |
| 47 | int | 47 | 47 | int | 47 |
| 48 | int | 48 | 48 | int | 48 |
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| 52 | int | 52 | 52 | int | 52 |
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| 67 | int | 67 | 67 | int | 67 |
| 68 | int | 68 | 68 | int | 68 |
| 69 | int | 69 | 69 | int | 69 |
| 70 | int | 70 | 70 | int | 70 |
| 71 | int | 71 | 71 | int | 71 |
| 72 | int | 72 | 72 | int | 72 |
| 73 | int | 73 | 73 | int | 73 |
| 74 | int | 74 | 74 | int | 74 |
| 75 | int | 75 | 75 | int | 75 |
| 76 | int | 7 | | | |

| | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|
| ctg | gag | tg | ttt | tct | acc | ttg | ttt | cca | aga | att | cca | gtt | cca | gtt | caa | 709 |
| Leu | Glu | Trp | Phe | Ser | Thr | Leu | Phe | Pro | Arg | Ile | Pro | Val | Pro | Val | Gln | |
| 156 | | | | | 161 | | | | | 166 | | | | | 171 | |
| aag | aat | att | gat | caa | cag | att | aaa | acc | cga | cct | aga | aaa | atc | aag | aaa | 757 |
| Lys | Asn | Ile | Asp | Gln | Gln | Ile | Lys | Thr | Arg | Pro | Arg | Lys | Ile | Lys | Lys | |
| 172 | | | | | 177 | | | | | 182 | | | | | 187 | |
| gat | ggg | aag | gaa | ggt | gct | gag | gaa | ata | gac | aga | cat | gtt | gaa | cgc | aga | 805 |
| Asp | Gly | Lys | Glu | Gly | Ala | Glu | Glu | Ile | Asp | Arg | His | Val | Glu | Arg | Arg | |
| 188 | | | | | 193 | | | | | 198 | | | | | 203 | |
| cgt | tca | agg | tct | cca | agg | aga | tct | ctg | agt | cca | cgg | agg | tcc | cca | aga | 853 |
| Arg | Ser | Arg | Ser | Pro | Arg | Arg | Ser | Leu | Ser | Pro | Arg | Arg | Ser | Pro | Arg | |
| 204 | | | | | 209 | | | | | 214 | | | | | 219 | |
| agg | tca | aga | agt | aga | agt | cat | cat | cgg | gag | ggc | cat | ggg | tct | tct | agt | 901 |
| Arg | Ser | Arg | Ser | Arg | Ser | His | His | Arg | Glu | Gly | His | Gly | Ser | Ser | Ser | |
| 220 | | | | | 225 | | | | | 230 | | | | | 235 | |
| ttt | gac | aga | gaa | tta | gaa | aga | gag | aaa | gaa | cgc | cag | cga | cta | gag | cgt | 949 |
| Phe | Asp | Arg | Glu | Leu | Glu | Arg | Glu | Lys | Glu | Arg | Gln | Arg | Leu | Glu | Arg | |
| 236 | | | | | 241 | | | | | 246 | | | | | 251 | |
| gaa | gcc | aaa | gaa | agg | gag | aaa | gaa | cgg | cga | aga | tcc | cga | agt | att | gac | 997 |
| Glu | Ala | Lys | Glu | Arg | Glu | Lys | Glu | Arg | Arg | Arg | Ser | Arg | Ser | Ile | Asp | |
| 252 | | | | | 257 | | | | | 262 | | | | | 267 | |
| cgg | ggg | tta | gaa | cgc | agg | cgc | agc | aga | agt | agg | gaa | agg | cat | aga | agt | 1045 |
| Arg | Gly | Leu | Glu | Arg | Arg | Arg | Ser | Arg | Ser | Arg | Glu | Arg | His | Arg | Ser | |
| 268 | | | | | 273 | | | | | 278 | | | | | 283 | |
| cgc | agt | cga | agt | cgt | gat | agg | aaa | ggg | gat | aga | agg | gac | agg | gat | cga | 1093 |
| Arg | Ser | Arg | Ser | Arg | Asp | Arg | Lys | Gly | Asp | Arg | Arg | Asp | Arg | Asp | Arg | |
| 284 | | | | | 289 | | | | | 294 | | | | | 299 | |
| gaa | aga | gag | aaa | gaa | aat | gag | aga | ggt | aga | aga | cga | gat | cgt | gac | tat | 1141 |
| Glu | Arg | Glu | Lys | Glu | Asn | Glu | Arg | Gly | Arg | Arg | Arg | Asp | Arg | Asp | Tyr | |
| 300 | | | | | 305 | | | | | 310 | | | | | 315 | |
| gat | aag | gaa | aga | gga | aat | gaa | cga | gaa | aaa | gag | aga | gag | cga | tca | aga | 1189 |
| Asp | Lys | Glu | Arg | Gly | Asn | Glu | Arg | Glu | Lys | Glu | Arg | Glu | Arg | Ser | Arg | |
| 316 | | | | | 321 | | | | | 326 | | | | | 331 | |
| gaa | agg | tcc | aag | gaa | cag | aga | agt | agg | gga | gag | gta | gaa | gag | aag | aaa | 1237 |
| Glu | Arg | Ser | Lys | Glu | Gln | Arg | Ser | Arg | Gly | Glu | Val | Glu | Glu | Lys | Lys | |
| 332 | | | | | 337 | | | | | 342 | | | | | 347 | |
| cat | aaa | gaa | gac | aaa | gat | gat | agg | cgg | cac | aga | gat | gac | aaa | aga | gat | 1285 |
| His | Lys | Glu | Asp | Lys | Asp | Asp | Arg | Arg | His | Arg | Asp | Asp | Lys | Arg | Asp | |
| 348 | | | | | 353 | | | | | 358 | | | | | 363 | |
| tcc | aag | | | | | | | | | | | | | | | |

| | |
|---|------|
| His Arg Ser Arg Ser Arg Ser Arg Asn Ala Gly Lys Arg Ser Arg Ser | |
| 380 385 390 395 | |
| aga agc aaa gag aaa tca agt aaa cat aaa aat gaa agt aaa gaa aaa | 1429 |
| Arg Ser Lys Glu Lys Ser Ser Lys His Lys Asn Glu Ser Lys Glu Lys | |
| 396 401 406 411 | |
| tca aat aaa cga agt cga agt ggc agt caa gga aga act gac agt gtt | 1477 |
| Ser Asn Lys Arg Ser Arg Ser Gly Ser Gln Gly Arg Thr Asp Ser Val | |
| 412 417 422 427 | |
| gaa aaa tca aaa aaa cgg gaa cat agt ccc agc aaa gaa aaa tct aga | 1525 |
| Glu Lys Ser Lys Lys Arg Glu His Ser Pro Ser Lys Glu Lys Ser Arg | |
| 428 433 438 443 | |
| aag cgt agt aga agc aaa gaa cgt tcc cac aaa cga gat cac agt gat | 1573 |
| Lys Arg Ser Arg Ser Lys Glu Arg Ser His Lys Arg Asp His Ser Asp | |
| 444 449 454 459 | |
| agt aag gac cag tca gac aaa cat gat cgt cga agg agc caa agt ata | 1621 |
| Ser Lys Asp Gln Ser Asp Lys His Asp Arg Arg Arg Ser Gln Ser Ile | |
| 460 465 470 475 | |
| gaa caa gag agc caa gaa aaa cag cat aaa aac aaa gat gag act gtg | 1669 |
| Glu Gln Glu Ser Gln Glu Lys Gln His Lys Asn Lys Asp Glu Thr Val | |
| 476 481 486 491 | |
| tga aaat attttgtaaa agtggatcac attgaatcct ataaatgatt aaatctgctt | 1726 |
| * 492 | |
| ttttcccca cgttgagatt gtgcagtagt tcgcactcct caagctctcc ctgtaggctg | 1786 |
| cattttcatt tcctctttcg tgtagggaag tgcctttgta attccattta ttgcattggt | 1846 |
| gttttcaccc aattgttaag tttgatacat gatgcacaga ttgtttcttgc attttttattg | 1906 |
| tttgtttttg aaatgtacag tctgtacata tgtcctgaaa atgttttaaat tcctttggca | 1966 |
| tggttgccat gttgggttaa tttgtataag gcaataaact gccactaatc taaaaaaaaa | 2026 |
| aaaa | 2030 |

<210> 1091
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 <212> DNA
 <213> Homo sapiens

<220>
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 <222> (630) .. (950)

<400> 1091
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| | | | | | | |
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| ggattgctc | ttctttcaag | cctgttct | caaagaaaa | cacaatcagg | ttgctttgat | 120 |
| ctggattctt | cattactaca | tctgaaaagc | ttctcatcta | gaagtcctcg | accatgttta | 180 |
| aacattgaag | atgatccaga | tattcatgaa | aaaccatttt | tgagttctag | tgctccacct | 240 |
| ataacaagtc | ttagtctcct | aggaaatttt | gaggaatctg | tcttgaacta | tcgtttcgat | 300 |
| cctctcggca | ttgttgatgg | ttttactgcc | gaggtagggg | caagtgggtgc | tttctgcccc | 360 |
| acacatttga | ctcttccagt | tgaagtgtca | ttctacagtg | tttcagatga | caatgctccc | 420 |
| tctccttata | tgggtgtgat | tacttttagag | tcccttggtg | aaaggggtta | tcgagtacct | 480 |
| ccttcaggag | caatacaagt | ggatatgtgt | ttatagccta | caattgcaat | aatcattctc | 540 |
| tcacatacat | atagaactta | gccctttctc | ctgctactgc | tgctgcaaca | actttgacct | 600 |
| tatttaatcc | taataagact | gtggtgaag | atg ttt gtt gtg ata tat gat tta | | | 653 |
| | | | Met Phe Val Val Ile Tyr Asp Leu | | | |
| | | | 1 5 | | | |
| cga gat atg cca gcc aat cat cag aca ttc cta cga caa aga act ttt | 701 | | | | | |
| Arg Asp Met Pro Ala Asn His Gln Thr Phe Leu Arg Gln Arg Thr Phe | | | | | | |
| 9 14 19 24 | | | | | | |
| tct gta cct gtt aaa caa gaa gtg aag aga agt gtt aat aaa gag aac | 749 | | | | | |
| Ser Val Pro Val Lys Gln Glu Val Lys Arg Ser Val Asn Lys Glu Asn | | | | | | |
| 25 30 35 40 | | | | | | |
| atc cga cac aca gaa gaa cgg tta tta cgc tac ctc ata cat ctg agg | 797 | | | | | |
| Ile Arg His Thr Glu Glu Arg Leu Leu Arg Tyr Leu Ile His Leu Arg | | | | | | |
| 41 46 51 56 | | | | | | |
| ttc cag agt tct aaa tct gga aag atc tac ctc cat aga gac gta cgg | 845 | | | | | |
| Phe Gln Ser Ser Lys Ser Gly Lys Ile Tyr Leu His Arg Asp Val Arg | | | | | | |
| 57 62 67 72 | | | | | | |
| ctc ctg ttc tct aga aag tca atg gag gtt gat agc ggt gct gca tat | 893 | | | | | |
| Leu Leu Phe Ser Arg Lys Ser Met Glu Val Asp Ser Gly Ala Ala Tyr | | | | | | |
| 73 78 83 88 | | | | | | |
| gaa ctc aaa tct tac act gaa tca cca aca aac cct cag ttt tca cca | 941 | | | | | |
| Glu Leu Lys Ser Tyr Thr Glu Ser Pro Thr Asn Pro Gln Phe Ser Pro | | | | | | |
| 89 94 99 104 | | | | | | |
| aga tgt tga taaggag tgatgattta aagtattttac tcagtaccca agctgtgcga | 997 | | | | | |
| Arg Cys * | | | | | | |
| 105 | | | | | | |
| gtaaaaatta tcatagaatg gagtgtacca aattaacaat caggagagtg gattctctcc | 1057 | | | | | |
| tgttatcctg gaccagtttt tatgaaagga ttcttgaaat gaaatccata tattccatgt | 1117 | | | | | |
| agactggaaa aactcatgtc ctaatccttt ttgtactgct gaaaccactt cattggacat | 1177 | | | | | |

| | |
|--|------|
| att gag aaa gct aaa att ggc cga tgt gaa acg gaa gag cga acc agg | 639 |
| Ile Glu Lys Ala Lys Ile Gly Arg Cys Glu Thr Glu Glu Arg Thr Arg | |
| 92 97 102 107 | |
| cta gca aaa gag ctt tct tca ctt cga gac caa agg gaa cag cta aag | 687 |
| Leu Ala Lys Glu Leu Ser Ser Leu Arg Asp Gln Arg Glu Gln Leu Lys | |
| 108 113 118 123 | |
| gca gaa gta gaa aaa tac aaa gac tgt gat ccg caa gtt gtg gaa gaa | 735 |
| Ala Glu Val Glu Lys Tyr Lys Asp Cys Asp Pro Gln Val Val Glu Glu | |
| 124 129 134 139 | |
| ata cgc caa gca aat aaa gta gcc aaa gaa gct gct aac aga tgg act | 783 |
| Ile Arg Gln Ala Asn Lys Val Ala Lys Glu Ala Ala Asn Arg Trp Thr | |
| 140 145 150 155 | |
| gat aac ata ttc gca ata aaa tct tgg gcc aaa aga aaa ttt ggg ttt | 831 |
| Asp Asn Ile Phe Ala Ile Lys Ser Trp Ala Lys Arg Lys Phe Gly Phe | |
| 156 161 166 171 | |
| gaa gaa aat aaa att gat aga act ttt gga att cca gaa gac ttt gac | 879 |
| Glu Glu Asn Lys Ile Asp Arg Thr Phe Gly Ile Pro Glu Asp Phe Asp | |
| 172 177 182 187 | |
| tac ata gac taa aat attccatggg ggtgaaggat gtacaagctt gtgaatatgt | 934 |
| Tyr Ile Asp * | |
| 188 | |
| aaattttaaa ctattatcta actaagtgtg ctgaattgtc gtttgctgt aactgtgttt | 994 |
| atcatttttat taatgttaaa taaagtgtaa aatgcagatg ttcttcaccc cttttggtag | 1054 |
| aacaaaagca ggatgataac catatccccc cagtgtcat caaagtagga cactaaaaat | 1114 |
| ccatccatct cagtcaaagt cgagcggccg cgaatttagt agtagtagcg gccgctctag | 1174 |
| aggatccaag cttacgtacg cgtgcatgcy acgtcatagc tcttctatag tgtcacctaa | 1234 |
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<210> 1093
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<220>
 <221> CDS
 <222> (204) .. (653)

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| ttggtggaag aagacagcag gcggtgggca ttactgtgc tgggtgggaag tctggttaca | 120 |

<221> CDS

<222> (202)..(1929)

<400> 1094

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gtggcggatg cggccgtgag cgggcggggg aggtgctgct gctgcctcca ctgtactcag 120
accaggtag cacaggattg tccatcctcc agcagctcag tgcaacggtg tgaactcagc 180
ctgtttcaga gcctccacac c atg acc tcc aag aag ctg gtg aac tcg gtg 231
Met Thr Ser Lys Lys Leu Val Asn Ser Val
1 5
gct ggc tgt gct gat gac gct ctt gct ggc ctg gtg gcc tgc aac ccc 279
Ala Gly Cys Ala Asp Asp Ala Leu Ala Gly Leu Val Ala Cys Asn Pro
11 16 21 26
aac ctg cag ctc ctg cag ggc cac cgc gtg gcc ctc cgt tct gac ctg 327
Asn Leu Gln Leu Leu Gln Gly His Arg Val Ala Leu Arg Ser Asp Leu
27 32 37 42
gac agc ctc aag ggc cgg gtg gca ctg ctg tcg ggt ggg ggc tct ggc 375
Asp Ser Leu Lys Gly Arg Val Ala Leu Leu Ser Gly Gly Gly Ser Gly
43 48 53 58
cat gag cct gcc cat gct ggt ttc ata ggg aag ggg atg ctg act ggg 423
His Glu Pro Ala His Ala Gly Phe Ile Gly Lys Gly Met Leu Thr Gly
59 64 69 74
gtc atc gcg gga gct gtg ttc acc tcc ccg gca gtg ggc agc atc ctg 471
Val Ile Ala Gly Ala Val Phe Thr Ser Pro Ala Val Gly Ser Ile Leu
75 80 85 90
gca gcc atc agg gcc gtg gcc cag gcc ggc aca gtg ggg acg ctc ctt 519
Ala Ala Ile Arg Ala Val Ala Gln Ala Gly Thr Val Gly Thr Leu Leu
91 96 101 106
atc gtg aag aac tac act ggg gat cgg ctc aac ttc ggc ctg gcc cgg 567
Ile Val Lys Asn Tyr Thr Gly Asp Arg Leu Asn Phe Gly Leu Ala Arg
107 112 117 122
gag cag gcc cgg gct gaa ggc atc ccg gtg gag atg gtg gtg att ggg 615
Glu Gln Ala Arg Ala Glu Gly Ile Pro Val Glu Met Val Val Ile Gly
123 128 133 138
gac gac agc gcc ttc act gtc ctg aag aag gca ggc cgg cgg ggg ctg 663
Asp Asp Ser Ala Phe Thr Val Leu Lys Lys Ala Gly Arg Arg Gly Leu
139 144 149 154
tgc ggc acc gtg ctt ata cac aag gtg gca ggt gct ctg gct gag gct 711
Cys Gly Thr Val Leu Ile His Lys Val Ala Gly Ala Leu Ala Glu Ala
155 160 165 170
ggt gtg ggg ctg gag gag atc gca aag cag gtg aac gtg gtc acc aag 759
Gly Val Gly Leu Glu Glu Ile Ala Lys Gln Val Asn Val Val Thr Lys
171 176 181 186

| | |
|---|------|
| gcc atg ggt acc ctg ggg gtg agc tta tcc tcc tgc agc gtc cct ggt | 807 |
| Ala Met Gly Thr Leu Gly Val Ser Leu Ser Ser Cys Ser Val Pro Gly | |
| 187 192 197 202 | |
| tcc aaa ccc acc ttc gag ctc tca gcc gac gag gtg gag ctg ggc ctg | 855 |
| Ser Lys Pro Thr Phe Glu Leu Ser Ala Asp Glu Val Glu Leu Gly Leu | |
| 203 208 213 218 | |
| ggg atc cac ggg gaa gct ggt gtg cgc cgg ata aag atg gca acc gcc | 903 |
| Gly Ile His Gly Glu Ala Gly Val Arg Arg Ile Lys Met Ala Thr Ala | |
| 219 224 229 234 | |
| gat gag att gtg aaa ctc atg ctc gac cac atg aca aac acc acc aac | 951 |
| Asp Glu Ile Val Lys Leu Met Leu Asp His Met Thr Asn Thr Thr Asn | |
| 235 240 245 250 | |
| gcg tcc cat gtg cct gtg cag ccc ggc tcc tca gtt gtg atg atg gtc | 999 |
| Ala Ser His Val Pro Val Gln Pro Gly Ser Ser Val Val Met Met Val | |
| 251 256 261 266 | |
| aac aac ctg ggt ggc ctg tca ttc ctg gaa ctg ggc atc ata gcc gac | 1047 |
| Asn Asn Leu Gly Gly Leu Ser Phe Leu Glu Leu Gly Ile Ile Ala Asp | |
| 267 272 277 282 | |
| gct acc gtc cgc tcc ctg gag ggc cgc ggg gtg aag att gcc cgt gcc | 1095 |
| Ala Thr Val Arg Ser Leu Glu Gly Arg Gly Val Lys Ile Ala Arg Ala | |
| 283 288 293 298 | |
| ctg gtg ggc acc ttc atg tca gca ctg gag atg cct ggc att tct ctc | 1143 |
| Leu Val Gly Thr Phe Met Ser Ala Leu Glu Met Pro Gly Ile Ser Leu | |
| 299 304 309 314 | |
| acc ctc ctg ctg gtg gat gag cct ctc ctg aaa ctg ata gat gct gaa | 1191 |
| Thr Leu Leu Leu Val Asp Glu Pro Leu Leu Lys Leu Ile Asp Ala Glu | |
| 315 320 325 330 | |
| acc act gca gca gcc tgg cct aac gtg gct gca gtc tcc att act ggg | 1239 |
| Thr Thr Ala Ala Ala Trp Pro Asn Val Ala Ala Val Ser Ile Thr Gly | |
| 331 336 341 346 | |
| cgg aag cgg agc cgg gta gcc cct gcc gag ccc cag gag gcc cct gat | 1287 |
| Arg Lys Arg Ser Arg Val Ala Pro Ala Glu Pro Gln Glu Ala Pro Asp | |
| 347 352 357 362 | |
| tcc act gct gca gga ggc tca gcc tcg aag cgg atg gcg ctg gtg ctg | 1335 |
| Ser Thr Ala Ala Gly Glu Ser Ala Ser Lys Arg Met Ala Leu Val Leu | |
| 363 368 373 378 | |
| gaa cgg gtg tgc agc act ctc ctg ggc ctg gag gaa cac ctg aat gcc | 1383 |
| Glu Arg Val Cys Ser Thr Leu Leu Gly Leu Glu Glu His Leu Asn Ala | |
| 379 384 389 394 | |
| ctg gac cgg gct gct ggt gac ggc gac tgt ggc acc acc cac agc cgt | 1431 |
| Leu Asp Arg Ala Ala Gly Asp Gly Asp Cys Gly Thr Thr His Ser Arg | |
| 395 400 405 410 | |

| | |
|---|------|
| gcg gcc aga gca atc cag gag tgg ctg aag gag ggc cca ccc cct gcc Ala Ala Arg Ala Ile Gln Glu Trp Leu Lys Glu Gly Pro Pro Pro Ala 411 416 421 426 | 1479 |
| agc cct gcc cag ctg ctc tcc aag ttg tct gtt ctg ctc ctg gag aag Ser Pro Ala Gln Leu Leu Ser Lys Leu Ser Val Leu Leu Leu Glu Lys 427 432 437 442 | 1527 |
| atg gga ggc tca tct ggg gcg ctc tat ggc ctg ttc ctg act gcg gct Met Gly Gly Ser Ser Gly Ala Leu Tyr Gly Leu Phe Leu Thr Ala Ala 443 448 453 458 | 1575 |
| gca cag ccc ctg aag gcc aag acc agc ctc cca gcc tgg tct gct gcc Ala Gln Pro Leu Lys Ala Lys Thr Ser Leu Pro Ala Trp Ser Ala Ala 459 464 469 474 | 1623 |
| atg gat gcc ggc ctg gaa gcc atg cag aag tat ggc aag gct gct cca Met Asp Ala Gly Leu Glu Ala Met Gln Lys Tyr Gly Lys Ala Ala Pro 475 480 485 490 | 1671 |
| ggg gac agg act atg ctg gat tct ctg tgg gca gcg ggg cag gag ctc Gly Asp Arg Thr Met Leu Asp Ser Leu Trp Ala Ala Gly Gln Glu Leu 491 496 501 506 | 1719 |
| caa gcc tgg aag agc cca gga gct gat ctg tta caa gtc ctg acc aaa Gln Ala Trp Lys Ser Pro Gly Ala Asp Leu Leu Gln Val Leu Thr Lys 507 512 517 522 | 1767 |
| gca gtc aag agt gcc gaa gct gca gcc gag gcc acc aag aat atg gaa Ala Val Lys Ser Ala Glu Ala Ala Ala Glu Ala Thr Lys Asn Met Glu 523 528 533 538 | 1815 |
| gct gga gcc gga aga gcc agt tat atc agc tca gca cgg ctg gag cag Ala Gly Ala Gly Arg Ala Ser Tyr Ile Ser Ser Ala Arg Leu Glu Gln 539 544 549 554 | 1863 |
| cca gac ccc ggg gcg gtg gca gct gct gcc atc ctc cgg gcc atc ttg Pro Asp Pro Gly Ala Val Ala Ala Ala Ala Ile Leu Arg Ala Ile Leu 555 560 565 570 | 1911 |
| gag gtc ttg cag agc tag ggtgtg tgactgcctc ccttgccctc agctcctctc Glu Val Leu Gln Ser * | 1965 |
| 571 576 | |
| actgctgtgc tgagggtggcc tttgtcactt ccttctgcct tccaaccctc accttcccc | 2025 |
| ggcctggccc cattggccca ccctctaagt tgagcaggaa atcctccacc aagcttccag | 2085 |
| aactacagac agcaccacaga gtgagctgga gtgggtcccc atgcctctcc agcatgccct | 2145 |
| ttccctttgc aggagggtgg agtccttggg tcatgccctc ccctgccagc tctgggcttc | 2205 |
| agagataagg cattttcctt gtgcagcctt tacctggcaa tcctaatttg gttttaagac | 2265 |
| tccctgtgaa atgctttccg caccttaacc ccagtgcgc tgaaaaagaa agttaataaa | 2325 |
| ctataatata tggaaaaaaa aaaaa | 2350 |

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 atg tgg ttc atg tac ctg ctg agc tgg ctg tcg ctc ttc atc cag gtg 165
 Met Trp Phe Met Tyr Leu Leu Ser Trp Leu Ser Leu Phe Ile Gln Val
 1 5 10 15

 gcc ttc atc acg ctg gct gtc gcg gct gga ctc tat tac ctg gca gaa 213
 Ala Phe Ile Thr Leu Ala Val Ala Ala Gly Leu Tyr Tyr Leu Ala Glu
 17 22 27 32

 ctg ata gaa gaa tac aca gtg gcc acc agc agg atc ata aaa tac atg 261
 Leu Ile Glu Glu Tyr Thr Val Ala Thr Ser Arg Ile Ile Lys Tyr Met
 33 38 43 48

 atc tgg ttc tcc acc gct gta ctg att ggc ctc tac gtc ttt gag cgc 309
 Ile Trp Phe Ser Thr Ala Val Leu Ile Gly Leu Tyr Val Phe Glu Arg
 49 54 59 64

 ttc ccc acc agc atg att gga gtg ggc cta ttc acc aac ctc gtc tac 357
 Phe Pro Thr Ser Met Ile Gly Val Gly Leu Phe Thr Asn Leu Val Tyr
 65 70 75 80

 ttt ggc ctc ctc cag acc ttc ccc ttc atc atg ctg acc tcg cct aac 405
 Phe Gly Leu Leu Gln Thr Phe Pro Phe Ile Met Leu Thr Ser Pro Asn
 81 86 91 96

 ttc atc ctg tcg tgt gga cta gtg gtg gtg aat cat tac cta gca ttt 453
 Phe Ile Leu Ser Cys Gly Leu Val Val Val Asn His Tyr Leu Ala Phe
 97 102 107 112

 cag ttt ttt gca gaa gaa tat tat ccc ttc tca gag gtc ctg gcc tat 501
 Gln Phe Phe Ala Glu Glu Tyr Tyr Pro Phe Ser Glu Val Leu Ala Tyr
 113 118 123 128

 ttc act ttc tgc ctg tgg ata att ccg ttt gcg ttt ttt gtg tca ctt 549
 Phe Thr Phe Cys Leu Trp Ile Ile Pro Phe Ala Phe Phe Val Ser Leu
 129 134 139 144

 tcg gcc ggg gag aac gtc ctg ccc tct acc atg cag cca gga gat gat 597
 Ser Ala Gly Glu Asn Val Leu Pro Ser Thr Met Gln Pro Gly Asp Asp
 145 150 155 160

| | |
|---|-----|
| gtc gtc tcc aat tat ttc acc aaa ggc aag cgg ggc aaa cgc tta ggg | 645 |
| Val Val Ser Asn Tyr Phe Thr Lys Gly Lys Arg Gly Lys Arg Leu Gly | |
| 161 166 171 176 | |

| | |
|---|-----|
| atc ctg gtt gtc ttc tcc ttc atc aaa gag gcc att cta ccc agt cgt | 693 |
| Ile Leu Val Val Phe Ser Phe Ile Lys Glu Ala Ile Leu Pro Ser Arg | |
| 177 182 187 192 | |

| | |
|--|-----|
| cag aag ata tac tga ccccatgca ggcaggatgt ggggggcaag atcaggagag | 748 |
| Gln Lys Ile Tyr * | |
| 193 | |

| | |
|---|-----|
| tcaggccccct gggcctctat gccagggtggg gaccagaagt cgggaaggca cctaccacct | 808 |
|---|-----|

| | |
|--|-----|
| gccctggctt tcttccccctc aactctggag ccccatcccc accctccttg gggggctcag | 868 |
|--|-----|

| | |
|---|-----|
| cttggctcag atctgatgct tcaagaggct gtaacctcag agggcaccaa ggagggtggc | 928 |
|---|-----|

| | |
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| agagcctgtt tagccaggag gccgagggtcc ctcatgtctc cctgtccct tccaagggtg | 988 |
|---|-----|

| | |
|---|------|
| gtcaggaggt tctggccccg ctggggcagg cagggcaggg tctgtgaagc ttaagagcag | 1048 |
|---|------|

| | |
|--|------|
| atggtgacaa gttctctggg cagggtggcca tggggagggg ccatggcttg gcatgtccaa | 1108 |
|--|------|

| | |
|--|------|
| cagaaatagt ttttctgtt gaacggtgat ttctgtccaa gtgcagattt ccgtttgaat | 1168 |
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| | |
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| | |
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| cggcgcggggt atg gag ctt ggg ggt cac tgg gac atg aac tcg gcc ccg | 109 |
| Met Glu Leu Gly Gly His Trp Asp Met Asn Ser Ala Pro | |
| 1 5 10 | |

| | |
|---|-----|
| agg ctg gtc tcg gag acc gca gag cgg aaa cag gag cag aag aca gga | 157 |
| Arg Leu Val Ser Glu Thr Ala Glu Arg Lys Gln Glu Gln Lys Thr Gly | |
| 14 19 24 29 | |

| | |
|---|-----|
| acc gag gcg gag gct gcc gac tcc ggt gcc gtc gga gcc cgc cgc ttc | 205 |
| Thr Glu Ala Glu Ala Asp Ser Gly Ala Val Gly Ala Arg Arg Phe | |
| 30 35 40 45 | |

| | |
|---|-----|
| ctg ctc tgt ctc tac ttg ggg ggc ttc ttg gat ttg ttt ggt gtc agc | 253 |
| Leu Leu Cys Leu Tyr Leu Gly Gly Phe Leu Asp Leu Phe Gly Val Ser | |

| | | | | |
|---|-----|-----|-----|-----|
| 46 | 51 | 56 | 61 | |
| atg gtt gtg cct tta ttg agc ctt cat gtc aag tcc ctt gga gca agt | | | | 301 |
| Met Val Val Pro Leu Leu Ser Leu His Val Lys Ser Leu Gly Ala Ser | | | | |
| 62 | 67 | 72 | 77 | |
| cca aca gtt gct gga ata gta ggc tcc tcc tat ggc att ttg caa ctc | | | | 349 |
| Pro Thr Val Ala Gly Ile Val Gly Ser Ser Tyr Gly Ile Leu Gln Leu | | | | |
| 78 | 83 | 88 | 93 | |
| ttt tct agc aca ttg gtg ggc tgc tgg agc gat gta gtg gga aga cgg | | | | 397 |
| Phe Ser Ser Thr Leu Val Gly Cys Trp Ser Asp Val Val Gly Arg Arg | | | | |
| 94 | 99 | 104 | 109 | |
| tct tcc ttg ctg gca tgc att cta ctc agt gct ctg ggc tat ctc ctt | | | | 445 |
| Ser Ser Leu Leu Ala Cys Ile Leu Leu Ser Ala Leu Gly Tyr Leu Leu | | | | |
| 110 | 115 | 120 | 125 | |
| ctc gga gca gcc acc aat gtg ttt ctg ttt gtc ctg gct aga gtc ccg | | | | 493 |
| Leu Gly Ala Ala Thr Asn Val Phe Leu Phe Val Leu Ala Arg Val Pro | | | | |
| 126 | 131 | 136 | 141 | |
| gca ggt att ttt aaa cac act ctc tcc atc tca agg gct cta ctt tct | | | | 541 |
| Ala Gly Ile Phe Lys His Thr Leu Ser Ile Ser Arg Ala Leu Leu Ser | | | | |
| 142 | 147 | 152 | 157 | |
| gat gtg gtt cca gag aag gaa cgg ccg ctt gta atc gga cac ttc aac | | | | 589 |
| Asp Val Val Pro Glu Lys Glu Arg Pro Leu Val Ile Gly His Phe Asn | | | | |
| 158 | 163 | 168 | 173 | |
| aca gcc tcc ggt gtg ggc ttc atc ttg ggc ccc gtg gtc ggt ggc tat | | | | 637 |
| Thr Ala Ser Gly Val Gly Phe Ile Leu Gly Pro Val Val Gly Gly Tyr | | | | |
| 174 | 179 | 184 | 189 | |
| ctc act gaa tta gag gat ggg ttt tat ctc aca gcc ttc atc tgc ttt | | | | 685 |
| Leu Thr Glu Leu Glu Asp Gly Phe Tyr Leu Thr Ala Phe Ile Cys Phe | | | | |
| 190 | 195 | 200 | 205 | |
| ttg gtc ttc att ctc aat gct ggt ctc gtt tgg ttc ttt cca tgg agg | | | | 733 |
| Leu Val Phe Ile Leu Asn Ala Gly Leu Val Trp Phe Phe Pro Trp Arg | | | | |
| 206 | 211 | 216 | 221 | |
| gaa gca aaa ccg ggc agt aca gag aag ggc ctg cca ttg cga aag acc | | | | 781 |
| Glu Ala Lys Pro Gly Ser Thr Glu Lys Gly Leu Pro Leu Arg Lys Thr | | | | |
| 222 | 227 | 232 | 237 | |
| cat gtg ctg ttg gga agg agc cat gac aca gtg cag gag gca gcc acc | | | | 829 |
| His Val Leu Leu Gly Arg Ser His Asp Thr Val Gln Glu Ala Ala Thr | | | | |
| 238 | 243 | 248 | 253 | |
| agc cgc aga gcc agg gcc agc aag aag act gcc cag ccc tgg gtc gaa | | | | 877 |
| Ser Arg Arg Ala Arg Ala Ser Lys Lys Thr Ala Gln Pro Trp Val Glu | | | | |
| 254 | 259 | 264 | 269 | |
| gta gtg ttg gcc ttg cgg aac atg aag aac ctg ctg ttt tcc gaa atg | | | | 925 |
| Val Val Leu Ala Leu Arg Asn Met Lys Asn Leu Leu Phe Ser Glu Met | | | | |
| 270 | 275 | 280 | 285 | |

| | |
|--|------|
| tgg gac ata ttt ctg gtg cgc ttg ctg atg gcc atg gca gtc atg ctg | 973 |
| Trp Asp Ile Phe Leu Val Arg Leu Leu Met Ala Met Ala Val Met Leu | |
| 286 291 296 301 | |
| tac tac agt aac ttt gtc ctg gcc ctg gag gag cgc ttt ggg gtg cgg | 1021 |
| Tyr Tyr Ser Asn Phe Val Leu Ala Leu Glu Glu Arg Phe Gly Val Arg | |
| 302 307 312 317 | |
| ccc aag gtg aca ggc tac ctc atc agt tac agc agc atg ctg ggg gcc | 1069 |
| Pro Lys Val Thr Gly Tyr Leu Ile Ser Tyr Ser Ser Met Leu Gly Ala | |
| 318 323 328 333 | |
| gtg gcc ggc ctt gcc ctg ggg cca atc cta cgg ctg tac aag cac aac | 1117 |
| Val Ala Gly Leu Ala Leu Gly Pro Ile Leu Arg Leu Tyr Lys His Asn | |
| 334 339 344 349 | |
| tcg cag gca ctg ctg ctg cat tcc agc ata ctc acc tgc aca ctg ctg | 1165 |
| Ser Gln Ala Leu Leu Leu His Ser Ser Ile Leu Thr Cys Thr Leu Leu | |
| 350 355 360 365 | |
| ctg ctc tac tcc ttg gcc ccc acc atg ggt gca gtt gtc ctc tcc tcc | 1213 |
| Leu Leu Tyr Ser Leu Ala Pro Thr Met Gly Ala Val Val Leu Ser Ser | |
| 366 371 376 381 | |
| act ctc ctg tcc ttc tcc act gcc att ggc agg acg tgc atc acg gac | 1261 |
| Thr Leu Leu Ser Phe Ser Thr Ala Ile Gly Arg Thr Cys Ile Thr Asp | |
| 382 387 392 397 | |
| ctc cag ctg act gtg ggc ggg gcc cag gcc agc ggc acc ctt att ggc | 1309 |
| Leu Gln Leu Thr Val Gly Gly Ala Gln Ala Ser Gly Thr Leu Ile Gly | |
| 398 403 408 413 | |
| gtg ggg cag tct gtg act gca gtg ggc cgc atc atc gcc cct ctc ctc | 1357 |
| Val Gly Gln Ser Val Thr Ala Val Gly Arg Ile Ile Ala Pro Leu Leu | |
| 414 419 424 429 | |
| tcg ggg gtt gcc cag gag gtc agc cct tgc ggc ccc ccc agc ctg ggc | 1405 |
| Ser Gly Val Ala Gln Glu Val Ser Pro Cys Gly Pro Pro Ser Leu Gly | |
| 430 435 440 445 | |
| gct gtg tta gcc tta gtg gcc att ttc ata atg tct cta aac aag cga | 1453 |
| Ala Val Leu Ala Leu Val Ala Ile Phe Ile Met Ser Leu Asn Lys Arg | |
| 446 451 456 461 | |
| cac tct agt ggt gat ggg aat agt aaa tta aaa agt gag tag atggatt | 1502 |
| His Ser Ser Gly Asp Gly Asn Ser Lys Leu Lys Ser Glu * | |
| 462 467 472 | |
| tggacaacat aaagcaacaa aatttgagat ggttgaatga gggccggagg ccatgatgaa | 1562 |
| aagggcactt tggaaagggt tgggggtggaa gggaaatatt tccgggtggg tgtgagctgt | 1622 |
| tgggcttcca ggtcagctct tggccatgca gccatgcctg caggatgatc agaagtcacg | 1682 |
| gcacctcatg ggaagggttaa gactggagca aagcttttcc aagtgtgacc cagagaccag | 1742 |

tagcatcagc atcacctgag acctgtgaac actgaagctc cagctcagac atgttgggga 1802
ccattttaat aagataccta gctgattttt tgcacagcaa actttgaaaaa cccctggtct 1862
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tgaaaaag atg gat act atg atg ctg aat gtg cgg aat ctg ttt gag cag 170
Met Asp Thr Met Met Leu Asn Val Arg Asn Leu Phe Glu Gln
1 5 10
ctt gtg cgc cgg gtg gag att ctc agt gaa gga aat gaa gtc caa ttt 218
Leu Val Arg Arg Val Glu Ile Leu Ser Glu Gly Asn Glu Val Gln Phe
15 20 25 30
atc cag ttg gcg aag gac ttt gag gat ttc cgt aaa aag tgg cag agg 266
Ile Gln Leu Ala Lys Asp Phe Glu Asp Phe Arg Lys Lys Trp Gln Arg
31 36 41 46
act gac cat gag ctg ggg aaa tac aag gat ctt ttg atg aaa gca gag 314
Thr Asp His Glu Leu Gly Lys Tyr Lys Asp Leu Leu Met Lys Ala Glu
47 52 57 62
act gag cga agt gct ctg gat gtt aag ctg aag cat gca cgt aat cag 362
Thr Glu Arg Ser Ala Leu Asp Val Lys Leu Lys His Ala Arg Asn Gln
63 68 73 78
gtg gat gta gag atc aaa cgg aga cag aga gct gag gct gac tgc gaa 410
Val Asp Val Glu Ile Lys Arg Arg Gln Arg Ala Glu Ala Asp Cys Glu
79 84 89 94
aag ctg gaa cga cag att cag ctg att cga gag atg ctc atg tgt gac 458
Lys Leu Glu Arg Gln Ile Gln Leu Ile Arg Glu Met Leu Met Cys Asp
95 100 105 110
aca tct ggc agc att caa cta agc gag gag caa aaa tca gct ctg gct 506
Thr Ser Gly Ser Ile Gln Leu Ser Glu Glu Gln Lys Ser Ala Leu Ala
111 116 121 126

| | |
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| ttt ctc aac aga ggc caa cca tcc agc agc aat gct ggg aac aaa aga | 554 |
| Phe Leu Asn Arg Gly Gln Pro Ser Ser Ser Asn Ala Gly Asn Lys Arg | |
| 127 132 137 142 | |
| cta tca acc att gat gaa tct ggt tcc att tta tca gat atc agc ttt | 602 |
| Leu Ser Thr Ile Asp Glu Ser Gly Ser Ile Leu Ser Asp Ile Ser Phe | |
| 143 148 153 158 | |
| gac aag act gat gaa tca ctg gat tgg gac tct tct ttg gtg aag act | 650 |
| Asp Lys Thr Asp Glu Ser Leu Asp Trp Asp Ser Ser Leu Val Lys Thr | |
| 159 164 169 174 | |
| ttc aaa ctg aag aag aga gaa aag agg cgc tct act agc cga cag ttt | 698 |
| Phe Lys Leu Lys Lys Arg Glu Lys Arg Arg Ser Thr Ser Arg Gln Phe | |
| 175 180 185 190 | |
| gtt gat ggt ccc cct gga cct gta aag aaa act cgt tcc att ggc tct | 746 |
| Val Asp Gly Pro Pro Gly Pro Val Lys Lys Thr Arg Ser Ile Gly Ser | |
| 191 196 201 206 | |
| gca gta gac cag ggg aat gaa tcc ata gtt gca aaa act aca gtg act | 794 |
| Ala Val Asp Gln Gly Asn Glu Ser Ile Val Ala Lys Thr Thr Val Thr | |
| 207 212 217 222 | |
| gtt ccc aat gat ggc ggg ccc atc gaa gct gtg tcc act att gag act | 842 |
| Val Pro Asn Asp Gly Gly Pro Ile Glu Ala Val Ser Thr Ile Glu Thr | |
| 223 228 233 238 | |
| gtg cca tat tgg acc agg agc cga agg aaa aca ggt act tta caa cct | 890 |
| Val Pro Tyr Trp Thr Arg Ser Arg Arg Lys Thr Gly Thr Leu Gln Pro | |
| 239 244 249 254 | |
| tgg aac agt gac tcc acc ctg aac agc agg cag ctg gag cca aga act | 938 |
| Trp Asn Ser Asp Ser Thr Leu Asn Ser Arg Gln Leu Glu Pro Arg Thr | |
| 255 260 265 270 | |
| gag aca gac agt gtg ggc acg cca cag agt aat gga ggg atg cgc ctg | 986 |
| Glu Thr Asp Ser Val Gly Thr Pro Gln Ser Asn Gly Gly Met Arg Leu | |
| 271 276 281 286 | |
| cat gac ttt gtt tct aag acg gtt att aaa cct gaa tcc tgt gtt cca | 1034 |
| His Asp Phe Val Ser Lys Thr Val Ile Lys Pro Glu Ser Cys Val Pro | |
| 287 292 297 302 | |
| tgt gga aag cgg ata aaa ttt ggc aaa tta tct ctg aag tgt cga gac | 1082 |
| Cys Gly Lys Arg Ile Lys Phe Gly Lys Leu Ser Leu Lys Cys Arg Asp | |
| 303 308 313 318 | |
| tgt cgt gtg gtc tct cat cca gaa tgt cgg gac cgc tgt ccc ctt ccc | 1130 |
| Cys Arg Val Val Ser His Pro Glu Cys Arg Asp Arg Cys Pro Leu Pro | |
| 319 324 329 334 | |
| tgc att cct acc ctg ata gga aca cct gtc aag att gga gag gga atg | 1178 |
| Cys Ile Pro Thr Leu Ile Gly Thr Pro Val Lys Ile Gly Glu Gly Met | |
| 335 340 345 350 | |
| ctg gca gac ttt gtg tcc cag act tct cca atg atc ccc tcc att gtt | 1226 |

| | | |
|---|---|---------|
| Leu Ala Asp Phe Val | Ser Gln Thr Ser Pro Met Ile Pro Ser Ile Val | |
| 351 | 356 | 361 366 |
| gtg cat tgt gta aat gag att gag caa aga ggt ctg act gag aca ggc | | 1274 |
| Val His Cys Val Asn Glu Ile Glu Gln Arg Gly Leu Thr Glu Thr Gly | | |
| 367 | 372 377 | 382 |
| ctg tat agg atc tct ggc tgt gac cgc aca gta aaa gag ctg aaa gag | | 1322 |
| Leu Tyr Arg Ile Ser Gly Cys Asp Arg Thr Val Lys Glu Leu Lys Glu | | |
| 383 | 388 393 | 398 |
| aaa ttc ctc aga gtg aaa act gta ccc ctc ctc agc aaa gtg gat gat | | 1370 |
| Lys Phe Leu Arg Val Lys Thr Val Pro Leu Leu Ser Lys Val Asp Asp | | |
| 399 | 404 409 | 414 |
| atc cat gct atc tgt agc ctt cta aaa gac ttt ctt cga aac ctc aaa | | 1418 |
| Ile His Ala Ile Cys Ser Leu Leu Lys Asp Phe Leu Arg Asn Leu Lys | | |
| 415 | 420 425 | 430 |
| gaa cct ctt ctg acc ttt cgc ctt aac aga gcc ttt atg gaa gca gca | | 1466 |
| Glu Pro Leu Leu Thr Phe Arg Leu Asn Arg Ala Phe Met Glu Ala Ala | | |
| 431 | 436 441 | 446 |
| gaa atc aca gat gaa gac aac agc ata gct gcc atg tac caa gct gtt | | 1514 |
| Glu Ile Thr Asp Glu Asp Asn Ser Ile Ala Ala Met Tyr Gln Ala Val | | |
| 447 | 452 457 | 462 |
| ggg gaa ctg ccc cag gcc aac agg gac aca tta gct ttc ctc atg att | | 1562 |
| Gly Glu Leu Pro Gln Ala Asn Arg Asp Thr Leu Ala Phe Leu Met Ile | | |
| 463 | 468 473 | 478 |
| cac ttg cag aga gtg gct cag agt cca cat act aaa atg gat gtt gcc | | 1610 |
| His Leu Gln Arg Val Ala Gln Ser Pro His Thr Lys Met Asp Val Ala | | |
| 479 | 484 489 | 494 |
| aat ctg gct aaa gtc ttt ggc cct aca ata gtg gcc cat gct gtg ccc | | 1658 |
| Asn Leu Ala Lys Val Phe Gly Pro Thr Ile Val Ala His Ala Val Pro | | |
| 495 | 500 505 | 510 |
| aat cca gac cca gtg aca atg tta cag gac atc aag cgt caa ccc aag | | 1706 |
| Asn Pro Asp Pro Val Thr Met Leu Gln Asp Ile Lys Arg Gln Pro Lys | | |
| 511 | 516 521 | 526 |
| gtg gtt gag cgc ctg ctt tcc ttg cct ctg gag tat tgg agt cag ttc | | 1754 |
| Val Val Glu Arg Leu Leu Ser Leu Pro Leu Glu Tyr Trp Ser Gln Phe | | |
| 527 | 532 537 | 542 |
| atg atg gtg gag caa gag aac att gac ccc cta cat gtc att gaa aac | | 1802 |
| Met Met Val Glu Gln Glu Asn Ile Asp Pro Leu His Val Ile Glu Asn | | |
| 543 | 548 553 | 558 |
| tca aat gcc ttt tca aca cca cag aca cca gat att aaa gtg agt tta | | 1850 |
| Ser Asn Ala Phe Ser Thr Pro Gln Thr Pro Asp Ile Lys Val Ser Leu | | |
| 559 | 564 569 | 574 |
| ctg gga cct gtg acc act cct gaa cat cag ctt ctc aag act cct tca | | 1898 |
| Leu Gly Pro Val Thr Thr Pro Glu His Gln Leu Leu Lys Thr Pro Ser | | |

| 575 | 580 | 585 | 590 | |
|-----------------------|-----------------------|-------------------------|-----|------|
| tct ggt tcc ctg tca | cag aga gtc cgt tcc | acc ctc acc aag aac act | | 1946 |
| Ser Gly Ser Leu Ser | Gln Arg Val Arg Ser | Thr Leu Thr Lys Asn Thr | | |
| 591 | 596 | 601 | 606 | |
| cct aga ttt ggg agc | aaa agc aag tct gcc | act aac cta gga cga caa | | 1994 |
| Pro Arg Phe Gly Ser | Lys Ser Lys Ser Ala | Thr Asn Leu Gly Arg Gln | | |
| 607 | 612 | 617 | 622 | |
| ggc aac ttt ttt gct | tct cca atg ctc aag | tga agtcacat ctgcctgtta | | 2045 |
| Gly Asn Phe Phe Ala | Ser Pro Met Leu Lys * | | | |
| 623 | 628 | 633 | | |
| cttcccagca ttgactgact | ataagaaagg acacatctgt | actctgctct gcagcctcct | | 2105 |
| gtactcatta ctacttttag | cattctccag gcttttactc | aagttaaatt gtgcatgagg | | 2165 |
| gttttattaa aactatatat | atctccctt ccttctctc | aagtcacata atatcagcac | | 2225 |
| tttgtgctgg tcattgttgg | gagcttttag atgagacatc | tttcagggg tagaagggtt | | 2285 |
| agtatggaat tggttgtgat | tctttttggg gaagggggtt | attgttcctt tggcttaaag | | 2345 |
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| caatgacaga aaccctacct | atctgataag attagcttgt | ctcaggggtg gaagtgggag | | 2465 |
| ggcagggcaa agaaaggatt | agaccagagg atttaggatg | cctccttcta agaaccagaa | | 2525 |
| gttctcattc cccattatga | actgagctat aatatggagc | tttcataaaa atgggatgca | | 2585 |
| ttgaggacag aactagtgat | gggagtatgc gtagctttga | tttgatgat taggtcttta | | 2645 |
| atagtgttga gtggcacaac | cttgtaaata tgaaagtaca | actcgtatct atctctgatg | | 2705 |
| tgccgctggc tgaactttgg | gttcatttgg ggtcaaagcc | agtttttctt ttaaaattga | | 2765 |
| attcattctg atgcttggcc | cccatacccc caacctgtc | cagtggagcc caacttctaa | | 2825 |
| aggtcaatat atcatccttt | ggcatcccaa ctaacaataa | agagtaggct ataagggaag | | 2885 |
| attgtcaata ttttgtggta | agaaaagcta cagtcatttt | ttctttgcac tttggatgct | | 2945 |
| gaaatttttc ccatggaaca | tagccacatc tagatagatg | tgagcttttt cttctgttaa | | 3005 |
| aattattctt aatgtctgta | aaaacgattt tcttctgtag | aatgtttgac ttcgtattga | | 3065 |
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tggtcgcgtg gctgcgtggc tcggttcttg tgagcgaagc tttgtccggt tcggca      176
atg gac gga atc gtc act gag gtt gca gtt ggc gtg aag aga gga tct      224
Met Asp Gly Ile Val Thr Glu Val Ala Val Gly Val Lys Arg Gly Ser
   1             5             10             15

gac gaa cta ctc tca ggc agt gtt ctc agt agt ccg aac tct aat atg      272
Asp Glu Leu Leu Ser Gly Ser Val Leu Ser Ser Pro Asn Ser Asn Met
   17             22             27             32

agc agc atg gta gtt aca gcc aat ggt aat gat agt aaa aaa ttt aaa      320
Ser Ser Met Val Val Thr Ala Asn Gly Asn Asp Ser Lys Lys Phe Lys
   33             38             43             48

gga gaa gat aaa atg gat ggt gct cct tct cgt gta ctt cat att cga      368
Gly Glu Asp Lys Met Asp Gly Ala Pro Ser Arg Val Leu His Ile Arg
   49             54             59             64

aaa tta cct ggg gaa gta aca gaa act gaa gtt att gct tta ggc tta      416
Lys Leu Pro Gly Glu Val Thr Glu Thr Glu Val Ile Ala Leu Gly Leu
   65             70             75             80

cct ttt ggt aag gtg acc aac atc ctt atg ctg aaa gga aaa aat cag      464
Pro Phe Gly Lys Val Thr Asn Ile Leu Met Leu Lys Gly Lys Asn Gln
   81             86             91             96

gca ttt ttg gaa cta gca acc gag gaa gca gct att act atg gtt aat      512
Ala Phe Leu Glu Leu Ala Thr Glu Glu Ala Ala Ile Thr Met Val Asn
   97             102            107            112

tac tat tct gct gtg aca cct cat ctt cgt aac caa cca ata tat atc      560
Tyr Tyr Ser Ala Val Thr Pro His Leu Arg Asn Gln Pro Ile Tyr Ile
  113             118            123            128

cag tac tcg aat cac aaa gaa cta aag aca gat aat aca tta aac caa      608
Gln Tyr Ser Asn His Lys Glu Leu Lys Thr Asp Asn Thr Leu Asn Gln
  129             134            139            144

cgt gct cag gca gtt ctt caa gct gtg aca gct gtc cag aca gca aat      656
Arg Ala Gln Ala Val Leu Gln Ala Val Thr Ala Val Gln Thr Ala Asn
  145             150            155            160

act cct ctt agt ggc acc aca gtt agc gag agt gca gtg act cca gcc      704
Thr Pro Leu Ser Gly Thr Thr Val Ser Glu Ser Ala Val Thr Pro Ala
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| cag agt cca gta ctt aga ata att att gac aac atg tac tac cct gta | 752 |
| Gln Ser Pro Val Leu Arg Ile Ile Ile Asp Asn Met Tyr Tyr Pro Val | |
| 177 182 187 192 | |
| aca ctt gat gtt ctt cac caa ata ttt tct aag ttt ggt gct gta ttg | 800 |
| Thr Leu Asp Val Leu His Gln Ile Phe Ser Lys Phe Gly Ala Val Leu | |
| 193 198 203 208 | |
| aag ata atc aca ttt aca aaa aat aac cag ttt caa gct ttg ctc cag | 848 |
| Lys Ile Ile Thr Phe Thr Lys Asn Asn Gln Phe Gln Ala Leu Leu Gln | |
| 209 214 219 224 | |
| tat ggt gat cca gta aat gct caa caa gca aaa cta gcc cta gat ggt | 896 |
| Tyr Gly Asp Pro Val Asn Ala Gln Gln Ala Lys Leu Ala Leu Asp Gly | |
| 225 230 235 240 | |
| cag aat att tat aat gcc tgc tgt acc cta agg att gat ttt tcc aaa | 944 |
| Gln Asn Ile Tyr Asn Ala Cys Cys Thr Leu Arg Ile Asp Phe Ser Lys | |
| 241 246 251 256 | |
| ctt gtg aat ttg aat gta aaa tac aac aat gat aaa agt agg gat tat | 992 |
| Leu Val Asn Leu Asn Val Lys Tyr Asn Asn Asp Lys Ser Arg Asp Tyr | |
| 257 262 267 272 | |
| act cga cct gat ctt cca tct ggg gat gga caa cct gca ttg gac cca | 1040 |
| Thr Arg Pro Asp Leu Pro Ser Gly Asp Gly Gln Pro Ala Leu Asp Pro | |
| 273 278 283 288 | |
| gct att gct gca gca ttt gcc aag gag aca tcc ctc tta gct gtt cca | 1088 |
| Ala Ile Ala Ala Ala Phe Ala Lys Glu Thr Ser Leu Leu Ala Val Pro | |
| 289 294 299 304 | |
| gga gct ctg agt cct ttg gcc att cca aat gct gct gca gca gct gct | 1136 |
| Gly Ala Leu Ser Pro Leu Ala Ile Pro Asn Ala Ala Ala Ala Ala | |
| 305 310 315 320 | |
| gca gct gct gct ggc cga gtg ggt atg cct gga gtc tca gct ggt ggc | 1184 |
| Ala Ala Ala Ala Gly Arg Val Gly Met Pro Gly Val Ser Ala Gly Gly | |
| 321 326 331 336 | |
| aat aca gtc ctg ttg gtt agc aat tta aat gaa gag atg gtt acg ccc | 1232 |
| Asn Thr Val Leu Leu Val Ser Asn Leu Asn Glu Glu Met Val Thr Pro | |
| 337 342 347 352 | |
| caa agt ctg ttt acc ctc ttc ggt gtt tat gga gat gtg cag cgt gtg | 1280 |
| Gln Ser Leu Phe Thr Leu Phe Gly Val Tyr Gly Asp Val Gln Arg Val | |
| 353 358 363 368 | |
| aag att tta tac aat aag aaa gac agc gct cta ata cag atg gct gat | 1328 |
| Lys Ile Leu Tyr Asn Lys Lys Asp Ser Ala Leu Ile Gln Met Ala Asp | |
| 369 374 379 384 | |
| gga aac caa tca caa ctt gcc atg aat cat ctt aat gga cag aaa atg | 1376 |
| Gly Asn Gln Ser Gln Leu Ala Met Asn His Leu Asn Gly Gln Lys Met | |
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 Glu Val Glu Val Ile Ser Arg His Leu Pro Ala Leu Gly Leu Arg Asn
 6 11 16 21
 cgg ggc aag ggc gtc cga gcc gtg ttg agc ctc tgt cag cag act tcc 150
 Arg Gly Lys Gly Val Arg Ala Val Leu Ser Leu Cys Gln Gln Thr Ser
 22 27 32 37
 agg agt cag ccg ccg gtc cga gcc ttc ctg ctc atc tcc acc ctg aag 198
 Arg Ser Gln Pro Pro Val Arg Ala Phe Leu Leu Ile Ser Thr Leu Lys
 38 43 48 53
 gac aag cgc ggg acc cgc tat gag cta agg gag aac att gag caa ttc 246
 Asp Lys Arg Gly Thr Arg Tyr Glu Leu Arg Glu Asn Ile Glu Gln Phe
 54 59 64 69
 ttc acc aaa ttt gta gat gag ggg aaa gcc act gtt cgg tta aag gag 294
 Phe Thr Lys Phe Val Asp Glu Gly Lys Ala Thr Val Arg Leu Lys Glu
 70 75 80 85
 cct cct gtg gat atc tgt cta agt aag gcc att tcc agc agt tta aaa 342
 Pro Pro Val Asp Ile Cys Leu Ser Lys Ala Ile Ser Ser Ser Leu Lys
 86 91 96 101
 ggt ttc ctt tca gct atg aga ctg gct cat aga ggc tgt aat gtt gat 390
 Gly Phe Leu Ser Ala Met Arg Leu Ala His Arg Gly Cys Asn Val Asp
 102 107 112 117
 aca cca gtt tca acg ctc aca cca gtg aag act tca gaa ttt gaa aac 438
 Thr Pro Val Ser Thr Leu Thr Pro Val Lys Thr Ser Glu Phe Glu Asn
 118 123 128 133
 ttt aaa act aaa atg gtt atc aca tcc aaa aaa gac tat cct cta agt 486
 Phe Lys Thr Lys Met Val Ile Thr Ser Lys Lys Asp Tyr Pro Leu Ser
 134 139 144 149
 aag aat ttt cca tat tcc ttg gaa cat ctt cag act tct tac tgt ggg 534
 Lys Asn Phe Pro Tyr Ser Leu Glu His Leu Gln Thr Ser Tyr Cys Gly
 150 155 160 165
 ctt gtc cga gtt gat atg cgt atg ctt tgc tta aaa agc ctt agg aaa 582
 Leu Val Arg Val Asp Met Arg Met Leu Cys Leu Lys Ser Leu Arg Lys
 166 171 176 181

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| tta gac ttg agt cac aac cat ata aaa aag ctt cca gct aca att gga | 630 |
| Leu Asp Leu Ser His Asn His Ile Lys Lys Leu Pro Ala Thr Ile Gly | |
| 182 187 192 197 | |
| gac ctc ata cac ctt caa gaa ctt aac ctg aat gac aat cac ttg gag | 678 |
| Asp Leu Ile His Leu Gln Glu Leu Asn Leu Asn Asp Asn His Leu Glu | |
| 198 203 208 213 | |
| tca ttt agt gta gcc ttg tgt cat tct aca ctc cag aag tca ctt cgg | 726 |
| Ser Phe Ser Val Ala Leu Cys His Ser Thr Leu Gln Lys Ser Leu Arg | |
| 214 219 224 229 | |
| agt ttg gac ctc agc aag aac aaa atc aag gca ctc cct gtg cag ttt | 774 |
| Ser Leu Asp Leu Ser Lys Asn Lys Ile Lys Ala Leu Pro Val Gln Phe | |
| 230 235 240 245 | |
| tgc cag ctc cag gaa ctt aag aat tta aaa ctt gac gat aat gaa ttg | 822 |
| Cys Gln Leu Gln Glu Leu Lys Asn Leu Lys Leu Asp Asp Asn Glu Leu | |
| 246 251 256 261 | |
| att caa ttt cct tgc aag ata gga caa cta ata aac ctt cgc ttt ttg | 870 |
| Ile Gln Phe Pro Cys Lys Ile Gly Gln Leu Ile Asn Leu Arg Phe Leu | |
| 262 267 272 277 | |
| tca gca gct cga aat aag ctt cca ttt ttg cct agt gaa ttt aga aat | 918 |
| Ser Ala Ala Arg Asn Lys Leu Pro Phe Leu Pro Ser Glu Phe Arg Asn | |
| 278 283 288 293 | |
| tta tcc ctt gaa tac ttg gat ctt ttt gga aat act ttt gaa caa cca | 966 |
| Leu Ser Leu Glu Tyr Leu Asp Leu Phe Gly Asn Thr Phe Glu Gln Pro | |
| 294 299 304 309 | |
| aaa gtc ctt cca gta ata aag ctg caa gca cca tta act tta ttg gaa | 1014 |
| Lys Val Leu Pro Val Ile Lys Leu Gln Ala Pro Leu Thr Leu Leu Glu | |
| 310 315 320 325 | |
| tct tct gca cga acc ata tta cat aat agg att cca tat ggc tct cat | 1062 |
| Ser Ser Ala Arg Thr Ile Leu His Asn Arg Ile Pro Tyr Gly Ser His | |
| 326 331 336 341 | |
| atc att cca ttc cat ctc tgc caa gat ttg gat acc gca aaa att tgt | 1110 |
| Ile Ile Pro Phe His Leu Cys Gln Asp Leu Asp Thr Ala Lys Ile Cys | |
| 342 347 352 357 | |
| gtt tgt gga aga ttc tgt ctg aac tct ttc att caa gga act act acc | 1158 |
| Val Cys Gly Arg Phe Cys Leu Asn Ser Phe Ile Gln Gly Thr Thr Thr | |
| 358 363 368 373 | |
| atg aat ctg cat tct gtt gcc cac act gtg gtc tta gta gat aat ttg | 1206 |
| Met Asn Leu His Ser Val Ala His Thr Val Val Leu Val Asp Asn Leu | |
| 374 379 384 389 | |
| ggg ggt act gaa gca cct att atc tct tat ttc tgt tct cta ggc tgt | 1254 |
| Gly Gly Thr Glu Ala Pro Ile Ile Ser Tyr Phe Cys Ser Leu Gly Cys | |
| 390 395 400 405 | |
| tat gtt aat tcc tct gat atg tta aag taa t gggtgagacc agaaaaagaa | 1305 |

Tyr Val Asn Ser Ser Asp Met Leu Lys *
406 411

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atg gac atg gtg cac ctg gtc cat gcc aag aat gcc cag gct ctg gcc 164
Met Asp Met Val His Leu Val His Ala Lys Asn Ala Gln Ala Leu Ala
1 5 10 15
agc gac cac gac tac agg aca cag tat cac aag ttc aca gca ctg ccc 212
Ser Asp His Asp Tyr Arg Thr Gln Tyr His Lys Phe Thr Ala Leu Pro
17 22 27 32
gag gac ctg aag atg gcc tgg gcc aag aaa gcc cat gcc ctg cag agt 260
Glu Asp Leu Lys Met Ala Trp Ala Lys Lys Ala His Ala Leu Gln Ser
33 38 43 48
gag ttg cgc tac aag tca gac ctg atc ggc atg aag ggc ata gga tgg 308
Glu Leu Arg Tyr Lys Ser Asp Leu Ile Gly Met Lys Gly Ile Gly Trp
49 54 59 64
ctg gcg ctg aga tcc cca cag atg gag agt gca aag aag gct gga gaa 356
Leu Ala Leu Arg Ser Pro Gln Met Glu Ser Ala Lys Lys Ala Gly Glu
65 70 75 80
ctc atc agc gag acc aag tac cgt aaa aaa cca gac agt atc aag ttc 404
Leu Ile Ser Glu Thr Lys Tyr Arg Lys Lys Pro Asp Ser Ile Lys Phe
81 86 91 96
acc aca gtg gtt gac tcc cca gac ctg gtt cat gcc aag aac agc tat 452
Thr Thr Val Val Asp Ser Pro Asp Leu Val His Ala Lys Asn Ser Tyr
97 102 107 112
atg cac tgc aat gag cgc atg tat aga tct gga gat gca gaa tcc ctg 500
Met His Cys Asn Glu Arg Met Tyr Arg Ser Gly Asp Ala Glu Ser Leu
113 118 123 128

| | |
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| cac aga tac acc ctg atc ccc gac cat ccc gat ttc acc cga gct cgc | 548 |
| His Arg Tyr Thr Leu Ile Pro Asp His Pro Asp Phe Thr Arg Ala Arg | |
| 129 134 139 144 | |
| ctc aat gcg ctg cat ctg agt gac aaa gtc tac aga aac tcc tgg gag | 596 |
| Leu Asn Ala Leu His Leu Ser Asp Lys Val Tyr Arg Asn Ser Trp Glu | |
| 145 150 155 160 | |
| cag acc cgg gct ggc agt tat gac ttc agg ctg gat gcc atc ccc ttc | 644 |
| Gln Thr Arg Ala Gly Ser Tyr Asp Phe Arg Leu Asp Ala Ile Pro Phe | |
| 161 166 171 176 | |
| cag act gcc cgg gca tct agg gag atc gcc agt gat ttc cgg tac aaa | 692 |
| Gln Thr Ala Arg Ala Ser Arg Glu Ile Ala Ser Asp Phe Arg Tyr Lys | |
| 177 182 187 192 | |
| gag gct ttc ctg cgg gac cga ggc ctg cag atc ggg tac cgc agt gtc | 740 |
| Glu Ala Phe Leu Arg Asp Arg Gly Leu Gln Ile Gly Tyr Arg Ser Val | |
| 193 198 203 208 | |
| gac gat gac cca agg atg aag cat ttc ctc aac gtt ggc agg ctc cag | 788 |
| Asp Asp Asp Pro Arg Met Lys His Phe Leu Asn Val Gly Arg Leu Gln | |
| 209 214 219 224 | |
| agt gac aat gag tac aag aag gac ttt gcc aag agt cgg tcc cag ttt | 836 |
| Ser Asp Asn Glu Tyr Lys Lys Asp Phe Ala Lys Ser Arg Ser Gln Phe | |
| 225 230 235 240 | |
| cac agc agc aca gac cag ccc ggc ctc ctt cag gcc aag agg agc cag | 884 |
| His Ser Ser Thr Asp Gln Pro Gly Leu Leu Gln Ala Lys Arg Ser Gln | |
| 241 246 251 256 | |
| cag ctg gcc agt gat gtg cac tac agg cag ccc ctg ccc cag ccc acc | 932 |
| Gln Leu Ala Ser Asp Val His Tyr Arg Gln Pro Leu Pro Gln Pro Thr | |
| 257 262 267 272 | |
| tgc gac ccg gag cag ctg ggc ctc agg cat gct cag aag gcc cac cag | 980 |
| Cys Asp Pro Glu Gln Leu Gly Leu Arg His Ala Gln Lys Ala His Gln | |
| 273 278 283 288 | |
| ctg cag agt gat gtc aag tat aaa tca gac ttg aac ctg acc aga ggt | 1028 |
| Leu Gln Ser Asp Val Lys Tyr Lys Ser Asp Leu Asn Leu Thr Arg Gly | |
| 289 294 299 304 | |
| gtt ggc tgg acc cct cct ggc tcc tac aaa gtg gaa atg gct cgg cgg | 1076 |
| Val Gly Trp Thr Pro Pro Gly Ser Tyr Lys Val Glu Met Ala Arg Arg | |
| 305 310 315 320 | |
| gct gcg gaa ctg gcc aac gca agg ggc ctg ggt ctc cag gga gct tac | 1124 |
| Ala Ala Glu Leu Ala Asn Ala Arg Gly Leu Gly Leu Gln Gly Ala Tyr | |
| 321 326 331 336 | |
| cgg ggg gca gaa gca gtg gag gct gga gat cat cag agt ggg gag gtg | 1172 |
| Arg Gly Ala Glu Ala Val Glu Ala Gly Asp His Gln Ser Gly Glu Val | |
| 337 342 347 352 | |
| aac cca gat gcc act gag att ctg cac gtc aaa aag aag aag gcc ctg | 1220 |

Asn Pro Asp Ala Thr Glu Ile Leu His Val Lys Lys Lys Lys Ala Leu
 353 358 363 368

ctg ttg tga gccatgt ccacctgat tcttgagagg ccagagagga agtttgttca 1276
 Leu Leu *
 369

ccagagacag gcttcagatg gctttgattt cggcaagctg gaatggccca ccagcccatc 1336

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 gccctacacc atg cag ggg tgg att gcc cta gca gcg gct ggt ggc tgt 589
 Met Gln Gly Trp Ile Ala Leu Ala Ala Gly Gly Cys
 1 5 10

ctc tcc tgc tca gag gtg ctc tgc tcc ttt aag gca cat cta aac ccc 637
 Leu Ser Cys Ser Glu Val Leu Cys Ser Phe Lys Ala His Leu Asn Pro
 14 19 24 29

caa gat cgg tca ggc gca aca ccc ctc att ata gca gct cag atg tgt 685
 Gln Asp Arg Ser Gly Ala Thr Pro Leu Ile Ile Ala Ala Gln Met Cys
 30 35 40 45

cac aca gac ctg tgc cgt ctc cta ctg cag caa ggg gct gcc gcg aac 733
 His Thr Asp Leu Cys Arg Leu Leu Leu Gln Gln Gly Ala Ala Ala Asn
 46 51 56 61

| | | | | | | | | | | | | | | | | |
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| gat Asp 62 | cag Gln | gac Asp | ctg Leu | caa Gln | ggc Gly 67 | agg Arg | acg Thr | gcc Ala | ctg Leu | atg Met 72 | ctg Leu | gcc Ala | tgt Cys | gag Glu | ggg Gly 77 | 781 |
| gcc Ala 78 | agc Ser | ccc Pro | gaa Glu | aca Thr | gtg Val 83 | gag Glu | gtc Val | ctg Leu | ctg Leu | cag Gln 88 | ggc Gly | gga Gly | gcc Ala | cag Gln | ccg Pro 93 | 829 |
| ggc Gly 94 | atc Ile | acc Thr | gat Asp | gcg Ala | ctg Leu 99 | ggg Gly | cag Gln | gac Asp | gcg Ala | gct Ala 104 | cac His | tat Tyr | ggc Gly | gcc Ala | ctg Leu 109 | 877 |
| gcg Ala 110 | ggg Gly | gac Asp | aaa Lys | ctc Leu | atc Ile 115 | ctg Leu | cac His | ctt Leu | ctg Leu | caa Gln 120 | gag Glu | gcg Ala | gcc Ala | cag Gln | cgc Arg 125 | 925 |
| ccc Pro 126 | tcc Ser | cca Pro | ccc Pro | agc Ser | gcc Ala 131 | ctc Leu | aca Thr | gag Glu | gat Asp | gat Asp 136 | tca Ser | ggc Gly | gag Glu | gcg Ala | tca Ser 141 | 973 |
| tct Ser 142 | cag Gln | aac Asn | tct Ser | atg Met | tcc Ser 147 | agc Ser | cat His | gga Gly | aag Lys | cag Gln 152 | ggg Gly | gcc Ala | ccc Pro | aag Lys | aag Lys 157 | 1021 |
| cgg Arg 158 | aag Lys | gcg Ala | cct Pro | cca Pro | cct Pro 163 | ccc Pro | gcc Ala | agc Ser | att Ile | ccc Pro 168 | atg Met | ccg Pro | gat Asp | gat Asp | cga Arg 173 | 1069 |
| gat Asp 174 | gcc Ala | tat Tyr | gag Glu | gag Glu | atc Ile 179 | gtg Val | agg Arg | ctg Leu | cgg Arg | cag Gln 184 | gag Glu | agg Arg | ggc Gly | cgc Arg | ctc Leu 189 | 1117 |
| ctg Leu 190 | cag Gln | aag Lys | atc Ile | cgg Arg | ggc Gly 195 | ctg Leu | gaa Glu | cag Gln | cac His | aag Lys 200 | gaa Glu | cgg Arg | agg Arg | cag Gln | cag Gln 205 | 1165 |
| gag Glu 206 | tcc Ser | ccg Pro | gag Glu | gcc Ala | agc Ser 211 | tcc Ser | ctg Leu | cac His | atc Ile | ctg Leu 216 | gag Glu | aga Arg | cag Gln | gtg Val | caa Gln 221 | 1213 |
| gag Glu 222 | cta Leu | cag Gln | cag Gln | ttg Leu | ctg Leu 227 | gtg Val | gag Glu | aga Arg | caa Gln | gag Glu 232 | gag Glu | aag Lys | gag Glu | agc Ser | ctg Leu 237 | 1261 |
| gga Gly 238 | cgg Arg | gag Glu | gtg Val | gag Glu | agt Ser 243 | ttg Leu | cag Gln | agc Ser | cgg Arg | ctg Leu 248 | tcc Ser | ctg Leu | ctg Leu | gag Glu | aac Asn 253 | 1309 |
| gag Glu 254 | cgg Arg | gag Glu | aat Asn | act Thr | agc Ser 259 | tat Tyr | gac Asp | gta Val | acc Thr | acc Thr 264 | ctg Leu | cag Gln | gat Asp | gag Glu | gag Glu 269 | 1357 |
| ggg Gly 270 | gag Glu | ctg Leu | cct Pro | gac Asp | ctt Leu 275 | cca Pro | ggg Gly | gcc Ala | gag Glu | gtg Val 280 | ctg Leu | ctg Leu | tcc Ser | aga Arg | caa Gln 285 | 1405 |

1

5

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 Leu Met Leu Gln Ala Met Gly Gln Ala Asp Ala Gly Arg Val Met Leu
 28 33 38 43

aag atg gaa aaa cag ctt gcg ctg atc gaa gac gaa acc cag gct gca 673
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gta ttt tcc aaa acg gtt aag caa att aaa caa gcc tac cgt cag taa 721
 Val Phe Ser Lys Thr Val Lys Gln Ile Lys Gln Ala Tyr Arg Gln *
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tataaaaccg gctgatagcg tgcctttcag ccggtttttg catctggcac gcaggacaga 781

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| | |
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| ctg ctg gat aac gca gca gca gac ctg gca gca atc tcc ggt caa aaa | 732 |
| Leu Leu Asp Asn Ala Ala Ala Asp Leu Ala Ala Ile Ser Gly Gln Lys | |
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| ccg ctg atc acc aaa gca cgc aaa tct gtt gca ggc ttc aaa atc cgt | 780 |
| Pro Leu Ile Thr Lys Ala Arg Lys Ser Val Ala Gly Phe Lys Ile Arg | |
| 65 70 75 80 | |
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| Gln Gly Tyr Pro Ile Gly Cys Lys Val Thr Leu Arg Gly Glu Arg Met | |
| 81 86 91 96 | |
| tgg gag ttc ttt gag cgc ctg atc act att gct gta cct cgt atc cgt | 876 |
| Trp Glu Phe Phe Glu Arg Leu Ile Thr Ile Ala Val Pro Arg Ile Arg | |
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| gac ttc cgt ggc ctg tcc gct aag tct ttc gac ggt cgt ggt aac tac | 924 |
| Asp Phe Arg Gly Leu Ser Ala Lys Ser Phe Asp Gly Arg Gly Asn Tyr | |
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| agc atg ggt gtc cgt gag cag atc atc ttc cca gaa atc gac tac gat | 972 |
| Ser Met Gly Val Arg Glu Gln Ile Ile Phe Pro Glu Ile Asp Tyr Asp | |
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| Lys Val Asp Arg Val Arg Gly Leu Asp Ile Thr Ile Thr Thr Ala | |
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| Lys Ser Asp Glu Glu Gly Arg Ala Leu Leu Ala Ala Phe Asp Phe Pro | |
| 161 166 171 176 | |
| ttc cgc aag taa ggt agggttacta aatgggctaag caatcaatga aagcacgcga | 1123 |
| Phe Arg Lys * | |
| 177 | |
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gaa gcc tat ctt cct gag acc ttt cgg cga cct cag atg gac cca gct 337

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